The Iron A

A Review of the Hardware, Iron and Metal Trades.

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The Bessemer Plant of the North Chicago Rolling Mill Company at South (12 inches square and long enough for 3 and 4 rails) as to be readily and quickly handled by the rolling machinery proposed.

This plan, which is due to the suggestion of Mr. L. G. Laurean, was by him worked out for a pair of vessels, and is shown on Mr. Holley's latest design for a 10-ton two-vessel late; and these excavages were made incago Rolling Mill Company at South
Chicago.*

BY R. FORSYTH.

Tails at one near, and were to be of such size (12 inches square and long enough for 3 and 4 rails) as to be readily and quickly handled by the rolling machinery proposed. This small size of ingots, and the large number cast from each heat of 10 tons, made it necessary to provide a good deal

plant. As used at South Chicago, it was modified for three vessels, and the simple but important change was made of putting between the jibs of the cranes a short piece of fixed track on which the ladle may rest in its As the latest plant on a large scale, the new Bessemer works of the North Chicago Rolling Mill Company, at South Chicago, presents of interest to steel makers, I have ventured to lay before the Institute a short description of that plant, and some remarks upon the practice there.

At the time the South Chicago works were designed the adoption of the basic process in this country seemed imminent. Experience in Europe had demonstrated the perfect success of the process technical manufacture of the perfect success of the process technical manufacture of the process in this country seemed imminent.

As the latest plant on a large scale, the new Bessemer works of the North Chicago Rolling in the casting pit—much more than in any previous plant—and to put down extra facilities for handling ingots. To meet the delays incident to the basic process—to insure that one vessel should be always blowing if necessary and to provide a good deal of room in the casting pit—much more than in any previous plant—and to put down extra facilities for handling ingots. To meet the delays incident to the basic short description of that plant, and some remarks upon the practice there.

At the time the South Chicago works were designed the adoption of the basic process in this country seemed imminent. Experience in Europe had demonstrated when the sound the important change was made of putting between the jibs of the cranes a short piece of fixed track on which the ladle may rest in its of fixed track on which the ladle may rest in its safe, simple and practicable method of lade transfer is really an important step in Bessemer construction, and will lead to some change in design of plant. The same object is attained in some foreign works by pouring the charge of steel from one ladle to another—all the process in this country seemed imminent. Experience in Europe had demonstrated were the provide of fixed track on which the stonework was begun. The same object in place a thick bed of concrete was laid in them, upon which the stonework was

pressure pumps, two in number, are Worthington compounds of the largest size and have given excellent results. In the enginehouse are also the necessary feed and tank pumps, accumulators, heaters, &c. The converting building contains three 10-ton vessels, two receiving ladle cranes, one casting ladle crane, three ingot cranes and one crane used in cleaning and handling ladles. The ingot and ladle handling cranes are The ingot and ladie handing cranes are placed symmetrically about a casting pit of 20 feet radius and command its whole circumference. In this pit there is room for forty 12-inch molds, occupying nearly three-quarters of the available casting space, and there is an ingot crane for each set of molds, so that three heats may be working at the same time if necessary. Ladle cleaning and As there was plenty of room on the ground same time if necessary. Ladle cleaning and

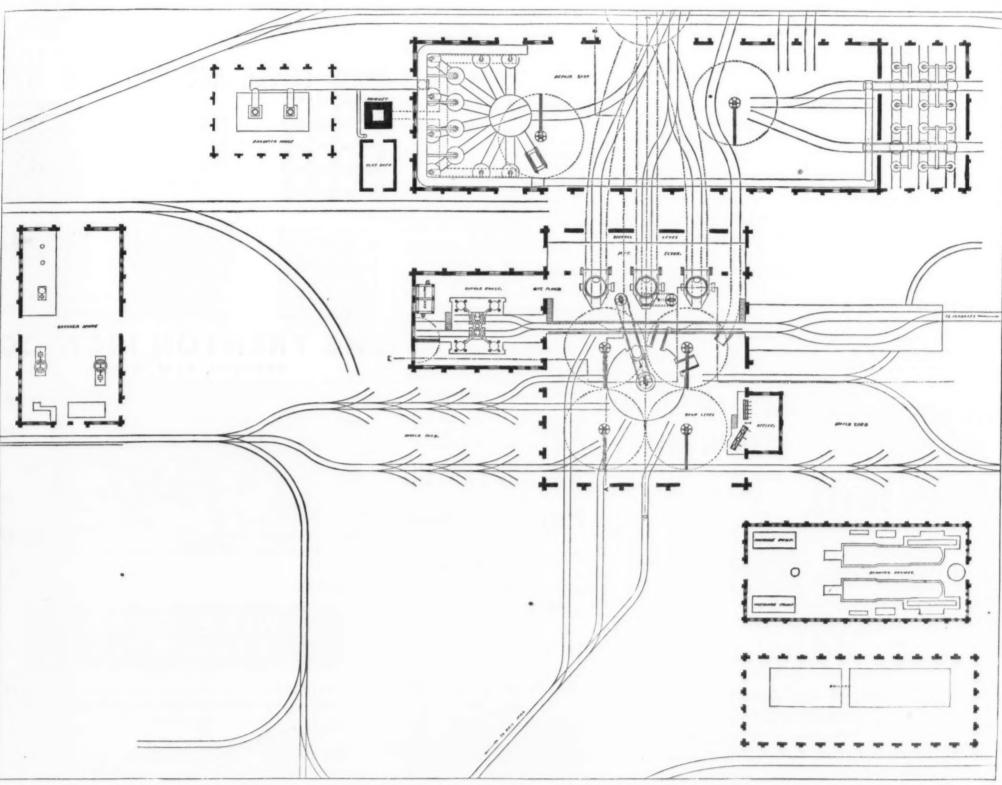


Fig. 1 .- General Plan of Bessemer Plant.

THE BESSEMER PLANT OF THE NORTH CHICAGO ROLLING MILL COMPANY, AT SOUTH CHICAGO.

cally, and the question of its commercial value was one which, for any particular works, would have to be settled by its special advantages for procuring the ne-resolved upon as furnishing the best soluvalue was one was to be settled by its works, would have to be settled by its special advantages for procuring the necessary ores and basic materials. Under the circumstances, it was thought best at South Chicago to so arrange the plant as to allow the introduction of the basic whenever ance of the old vessel shell to a convenient repair shop and the substitution of a newly lined shell in its place, and the proper distinct the same advisable, and to make such other value was one plant as the state of the art seemed to de-mand and to foreshadow. As the use of metal direct from the blast furnace, while metal direct from the blast furnace, while generally condemned by experts here, was in such successful practice in Europe (par-ticularly in connection with the basic pro-cess), there was no doubt about its feasibility, while its economy in fuel and labor made it especially attractive to the Western manufacturer. It was, accordingly, decided to build a direct-metal plant adapted to the

at all. It will thus be seen that several noveluports. The plan involves the convey-ance of the old vessel shell to a convenient form of a newly-lined shell in its place, and the proper disposition of these shells and of the vessel bottoms and iron and steel ladles (all of which are obviously out of place in the converting-room proper when not actually in use), was a matter of no small difficulty. Circumstances compelled the construction of the repair shop in the form shown, which, though not perhaps the bost possible, yet answers the purpose very well, so far as it has been used.

The plan involves the convey-year and all. It will thus be seen that several noveleties of construction were in this plant introduced for the first time, and that it stands alone in this country as a plant built experience, and the proper disposition of these shells and of the vessel shell to a convenient troduced for the first time, and that it stands alone in this country as a plant built experience, and the proper disposition of these shells and of the vessel shell to a convenient troduced for the first time, and that it stands alone in this country as a plant built experience, and the proper disposition of these shells and of the vessel shell to a convenient troduced for the first time, and that it stands alone in this country as a plant built experience, and the proper disposition of these shells and of the vessel shell to a convenient to which adjoin a spiegel cupola building, 66 feet by 47 feet, and a shed behind the vessels the floor is at sels. To 2 feet 6 inches by 102 feet 6 inches, by 22 feet; probable devices.

The site of the works is a sand beach washed up by Lake Michigan, and ranging in high from the converting-room proper when not actually in use, by 47 feet, and a shed behind the vessels the floor is at event the proper disposition of these to y 75 feet, to which adjoins a plant the proper devel. The end of proper devel. The end of the works is a sand beach washed up by Lake Michigan, and ranging in high from the c

basic process.

The ingots made were to be rolled into
Paper read at the autumn meeting of the American Inst. of Mining Engineers. October 10, 1883.

lowing the use of very short runners, or none house, 114 feet by 48 feet; converting build-leaving a clear and unobstructed space at all. It will thus be seen that several noving, 108 feet 6 inches by 102 feet 6 inches, around the pit, which is devoted to its proper

was statid. The general level of the works in diameter by 60 inches stroke, and are 20 feet apart from lake level, and all the building foundations the company's chief engineer, upon the plan were carried up to this hight, securing ample of those which had done good service in the head-room in sewers and good drainage. North Chicago plant for 10 years. The

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TRADE PUBLICATIONS.

The Clayton Steam Pump Works,

of 45 and 47 York street, Brooklyn, N. Y., have just issued a new catalogue for 1883 and 1884 on "Improved Air Compressors." The catalogue is very complete and well illustrated by both perspective and sectional drawings. Most of the important details are shown in an exceedingly satisfactory manner. In addition to the compressors, they also show a line of rock-drills, air-receivers, turbine water-wheels, electric blasting apparatus of all kinds, together with portable and stationary boilers, as well as steam pumps. The Clayton Works are, we believe, the sole iicensees of Steele's patent air governor, the particular advantage of which is that when properly set at any desired point, that when properly set at any desired point, it can never allow the pressure of air on rock-drills or other machinery to vary, provided there is steam enough to drive the compressor. It automatically controls the speed of the governor and compressor by throttling the steam as the air pressure rises. In addition to these more ordinary lines of In addition to these more ordinary lines of machinery, they make vacuum pumps, vacuum pans and evaporating machinery generally

Gauges, Speed Recorders, &c.

The Edson Reporting Alarm Gauge Company, 77 Liberty street, New York, send us new catalogue of gauges, speed recorders, c. A number of charts are given showing what the recording gauge can do in the way of continuous records, and much explanatory matter accompanies it in regard to the value of such records and the use which can be made of them. In testing boilers and engines it would seem that recording gauges might be more extensively used. Their use dispenses with at least one observer, and enables the variations of the pressure to be watched with the greatest exactitude. In taking indicator cards under such circumstances it is only necessary to make a note of the time at which the card was taken, and the pressure from the card at a convenient time. In some instances the value of this is very considerable. In connection with a pressure record a speed record is also valupressure record a speed record is also valuable. An automatic record enables very many problems to be solved which would hardly be thought of under the ordinary methods of observation.

Locomotive Brakes.

The Eames Vacuum Brake Company send as a descriptive catalogue of their locomotive driver brakes. The system consists. first, of a suitable diaphragm for furnishing the motive power, and, second, of an arrangement of levers by which the brakes can be applied to drivers of all kinds of engines, either on one or both sides of the wheel, on the outside or between them—in fact, almost any and every combination that can be desired. The pamphlet is nicely illustrated, and the diagrams show the different applications, together with the location of the levers of the diaphragm in connection vith the rods.

Filters.

Messrs. W. H. Bailey & Co., hydraulic engineers, of Salford, England, have sent us an interesting catalogue describing their high-pressure filters, lime catchers, gravitating tanks, &c. It measures about 9 x 13 inches, and embraces some 23 pages, amply illustrated with engravings representing their different manufactures. The descriptions, attached in almost all cases, are clear and concise, enabling the reader to form a fair idea of the nature of the apparatus considered, while the appended tables of prices and dimensions aid customers in determining upon such appliances as are best calculated to satisfy their requirements.

Iron Deposits in Lapland.

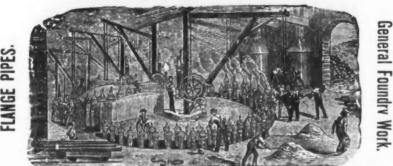
In the course of inspection of the country to be traversed by a line of railway from Lulea to the Ofoten Fjord, in Norway, Mr. James Wilkinson, of London, England, collected some interesting information concerning the part of Lapland which his party traversed, and which is practically unknown. In a recent letter to the London Daily Telegraph he says that Lulea is a town of about 4000 inhabitants, situate at the northwest end of the Gulf of Bothnia, with a very large timber **MANUFACTURERS OF THE Celebrated "D. B. G." Special Crane and Dredging Chains,

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The Gulf of Bothnia, with a very large timber trade. It has a fine situation and a good natural harbor, and vessels of large tomage frequent it. Vegetation is luxuriant, and most Northern plants thrive there. The country is well cultivated and thickly populated. At Ljusa sawmills have been erected, and great forests of noble pines begin here and stretch, with but slight intermission, for and stretch, with but signt intermission, for L40 miles north. About nine miles north of Ljusa—at Lapptrosk—a fine iron mine ex-ists. Over the whole distance, from Gelli-vara to Lulea, 140 miles, to be traversed by the railway, there are great valleys of sand and gravel and occasional bowlder stones, and the work of construction will be light The Gellivara Mountain is entirely com of very rich iron ore, hundreds of feet thick, of very rich iron ore, hundreds of feet thick, above ground, and covering many square miles. Some of the ore has been carted in the winter to the Gulf of Bothnia. The railway will go round the mountain, and no mining will be required, as the iron can be blasted in the open and put into trucks. The country between Panki Lake to the great iron mountain of Kirunavara is very flat, and at a distance of 40 miles this wonderful neak is visible. The mountain is several and at a distance of 40 miles this wonderful peak is visible. The mountain is several miles long, and is estimated to contain about 280,000,000 tens of ore above the water of the lake, and is exceedingly rich. No mining is necessary to win it. The mountain is about 85 miles from the proposed Atlantic harbor. The only sign of life on the mountain were two grand eagles. Four miles northwest from Kirunavara we stood on the summit of the sister iron mountain, Luosa summit of the sister iron mountain, Luosa

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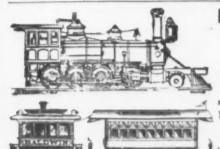
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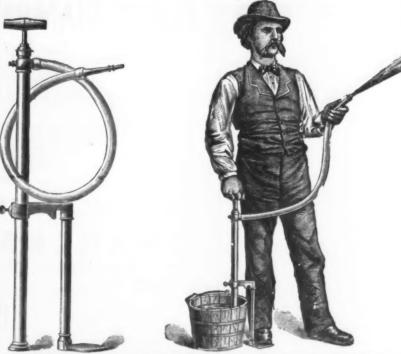
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Blast Furnace Economy in Relation to Design

At the recent meeting of the British Iron and Steel Institute a subject which has hithand Steel Institute a subject which has hith-erto apparently not received the attention it deserves was ably taken up by Mr. R. How-son in his paper on "Blast Furnace Economy in Relation to Design." As there stated, there are two questions relating to the econ-omy of iron smelting which, to the exclusion of almost every other, have occupied the attention of these meetings, viz., the influence of capacity of furnace and the influence of hot blast. The latter question has been especially forced to the front by the rapid change which is now taking place in the construction of heating stoves, and it has led to most valuable investigations of the chemistry of iron smelting by able men both chemistry of iron smelling by able men both at home and abroad, notably by prominent members of the Institute. The literature of the subject has, in fact, already become voluminous. Mr. Howson referred more particularly to the subject by the subject of the subject has in fact, already become voluminous. ticularly to the necessity of exercising more care in design as regards the internal form of the furnace and system of charging. We have all frequently heard questions of this nature dismissed by some such expression as the following: "The shape of a furnace is of very little consequence provided every-thing else is right; turn it upside down and it will do just as well." On the other hand, on will sometimes arise as to whether the angle of the bosh should be a degree more or less in slope, without reference to other conditions affecting the problem. There is something to be gained by bestowing a little more attention on a subject like this, while the stove question will not suffer if it is allowed to slumber awhile. Mr. Howson first drew the attention to a

amiliar fact, viz., that, as a rule, a blast familiar fact, viz., that, as a rule, a blast furnace deteriorates from year to year as regards the consumption of coke. In seeking for information on this point, the author was indebted to a number of proprietors of this district, who freely placed at his disposal all the particulars of coke consumption for a series of years, together with notes. for a series of years, together with notes relating to any change which may have taken place in the materials or nature of burthen, &c. As may be supposed, a very great difference was found in the comparative results. For instance, in one set of furnaces the duty had fallen off to the extent of the invested of the second of the secon tent of an increased consumption of 3.5 ewt. in four years; in another, 2 cwt. in six years; in another, at the rate of 14 cwt. per annum; in another, 1 cwt. in 12 years, and so on; while in one case, in a period of eight years the consumption was practically stationary. Again, the falling off does not necessarily proceed evenly from year to year. There is sometimes a sudden deterio-ration, the causes of which can generally be traced. "Altogether," continued Mr. How-son, "it is impossible to strike an average on account of the many disturbing influences; but if we eliminate those which are external to the furnace, such as changes in the quality of the materials, changes of burden, dilapidation of stoves, &c., we find that there is still a considerable deteriora-tion, the causes of which we must seek in the furnace itself. In short, it is only stating what every one conversant with the subject knows, to say that the with the subject knows, to say that the principal and most irremediable falling off in economy of production is coincident with, and due to, the formation of scaffolds. The ironstone may be lean and the coke bad, and the duty will decline in consequence; but for this there is a remedy. We do not find it usual that a furnace gets gobbed on this account, whereas there does come a time with almost every furnace when the accuwith almost every furnace when the accumulation and general deformation in the interior becomes so serious a matter that neither the best mine nor the best coke will save it from being condemned. So far I amonly stating facts which have been recognized long ago; but how is it that while iron smelters have been discussing the merits of various stoves with persistent energy, they have bestowed no thoughts on subjects like this, which are scarcely of minor importance if I do not pretend to have investigated it myself, but I propose to make a beginning by trying to find an answer to the following questions: 1. In what manner do scaffolds influence and impair the efficiency and economy of a furnace? 2. What means have we at command to prevent them? If we go back to the root of the first inquiry, we shall find that it has in reality an intimate relation with the subject that has been so much discussed, viz., the efficiency of hot blast. And here I will venture, with all deference, to state that in all the endeavors hitherto made to trace the sources of economy due to the heating of the blast, a great omission has been made. If I am

a great omission has been made. If I am wrong, I am open to correction.

"It would be impossible even to adhere here to all the theories which have been advanced to account for the efficiency of hot blast and define its limits. I will only refer to the most prominent one, viz., the necessity of heating the entering nitrogen in order to prevent it from retarding the com-bustion by the absorption of heat. This is a plea in favor of hot blast which seems to out-weigh all others, but there is another which is only secondary to it, and it is this which, so far as I am aware, has not been properly recognized. If we take an ordinary Cleveland furnace, the charge consists of, for every ton of coke, about 2½ tons of iron-stone and raw limestone. We have, therefore, immediately above the tuyeres, not less than 2½ times as much incombustible material as combustible. What would be the effect of these conditions if the blast were cold? In plain language, we should be blowing the fire which smelts the material. and at the same time cooling the material which has to be smelted. I need hardly which has to be smelted. I need hardly point out the fact that the number of units of heat given out during combustion is an invariable quantity at all temperatures. A pound of coke may be burnt quickly at a high temperature, or slowly at a low one, or it may be burnt under conditions where the heat is absorbed and becomes latent as fast as it is generated. As regards its entire heat is absorbed and becomes latent as fast as it is generated. As regards its entire duty, there is no difference in the work done. There is, however, a very great difference in its efficiency in the blast furnace, because it is possible for that pound of coke to be all burnt away and its heat dissipated without ever having reached the melting without ever having reached the melting that it is absorbed and because it is possible for that pound of coke to be all burnt away and its heat dissipated without ever having reached the melting that it is described by the figures are reliable so that it is generated. As regards its entire that, according to a return supplied to me at the time, the consumption for eight weeks ending December, 1880, was stated to have averaged only 17.44 cwt. and this duty was understood to have been verified, under his personal inspection, by Mr. I. L. Bell. Mr. Williams, however, now informs me that, although the figures are reliable so

"To treat, therefore, the work done in the hearth of a furnace as a question of heat duty alone, without reference to the temperature at which that duty is performed, is a mistake of the most misleading character. High temperature in front of the tuyeres is perhaps, the most important element of all in the economy of smelting. Consequently, if the incombustible part of the charge is so bulky in comparison with the combustible as to interfere with the production of the necessary high temperature, as it unquestionably does, the rational conclusion is that the blast ought to be heated to the same temperature that the ironstone has acquired in its descent to the zone of fusion. If, for instance, we suppose that temperature to be 3000 F., then the blast ought to be also 3000, if it were possible to obtain it, and here, so far as this part of the problem is concerned, would be the actual limit of economy. I shall now, no doubt, be met by those who have been engaged in the practical management of fur-naces, who will state that, in reality, the ironstone and lime are not mixed with the coke at the zone of fusion; that in a properly-working furnace the hearth is always full of working furnace the hearth is always full of coke, and that it is only the slag and reduced iron which passes the tuyeres. Well, that is bad enough, but how about a furnace that is working improperly! This brings us to the heart of the question, because it is a state of affairs that often happens. In addition to the large mass of melted matter which. which is constantly passing the tuyeres, there is often both ironstone and lime in cons derable quantity to be found in the hearth. It is a consequence of irregular working, and irregular working is a conse-quence of scaffolding."

Mr. Howson at this point exhibited a dia-

gram representing a section of an old furnace blown out some years ago, showing an ex-crescence round the boshes of a very extraor-dinary character. This was chosen as an extreme case, although it was an authentic one. Referring to this illustration, the author continued: "The charge would inevitably stick occasionally above the central opening; the hearth would then become empty, and the coke above the opening would begin to be consumed. The next fall would begin to be consumed. In ext fall would be probably the heavier portion of the charge, viz., that which is incombustible, and the furnace would be practically past recovery. Occurrences of this nature are notat all uncommon in old furnaces, although perhaps in a mitigated form. The charge is detained by excrescences and prevented from descending regularly; it arches over, and the coke is burnt away in the upper region; the coke is burnt away in the upper region; masses of unsmelted material fall in front of the tuyeres, and neither hot nor cold blast will ever smelt them, unle s a lucky fall of coke takes place at the same time. Such being the disastrous effect of scaffolds, we come now to the question, How are they to be prevented ! We know that they are to a be prevented? We know that they are to a certain extent prevented from forming by good materials and good heats, and, let me add, good management; but an accident may at any time give rise to them, and sooner or later they inevitably make their appearance. The question is more easily asked than answered, and I can suggest nothing better than a more recovering study. nothing better than a more accurate study of the best form of furnace than has hitherto been accorded to it. The first thing to in quire is, Where do these deposits commence to take place? All experience tends to show that they begin to form somewhere on the bosh. If the bosh is steep, usually higher up; if it is flat, generally lower down. It is where the materials first become sticky and lodge on a shoulder stupidly placed there to intercept them.

"In spite of the boast of this district, that it has been the pioneer in modern blast-furnace construction, I venture to say that, as regards the internal design of furnaces, it has been from beginning to end a rule-of-thumb busi-ness. The upper part, it is generally said, must widen out downward in order to allow must widen out downward in order to allow for the expansion of the charge, and the lower part must slope back at a considerable angle in order to relieve the hearth from pressure. This is all. The fact is that the hearth needs no relief from pressure; it re-lieves itself, and the more easily the charge slips down, the better the furnace works. The method of constructing a furnace with the boshes sloping back at a certain angle, and then, irrespective of diameter or posi-tion, suddenly turning in the opposite direc-tion, appears to be irrational in the highest degree. It is simply a device for catching and holding anything that will stick. To what alternative, then, are we driven ! A straight up-and-down furnace would, no doubt, answer well in working, but, owing to practical difficulties, this is out of the question on a large scale. The present form question on a large scale. The present form of furnace, except in reference to the de-fect pointed out, is good, and it is capable of variation in such a way as, at all events, to mitigate that defect."

A diagram representing the Treforest fur-nace was here shown. "The peculiar form of this furnace was adopted on the advice of our late respected president (Mr. Menelaus), and I believe it to be the best that has hitherto been devised. It is, perhaps, not en-tirely novel—most of us have seen something like it, as having been in use in the earlier history of iron smelting—but it is new in its adaptation to modern and more perfect appliances. The furnace is small—only 17 feet at the widest part, with a hight of 70 feet. The form is barrel-shaped, and there is no bosh in the ordinary sense—that is to say, there is no point where the angle sud-denly changes its direction. There is no pretense of trying to hold up the burden. The flattest part is at the bottom, where the smelting takes place, and there is no part where a scaffold can readily lodge without slipping. Mr. Williams has kindly furnished

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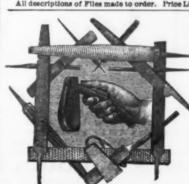
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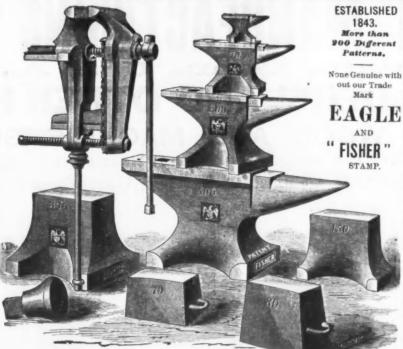


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far as Mr. Bell's investigation went, they over an extended period. I think we are bound to agree with this, because in this dis-trict, and working on Cleveland stone, fur-paid me. naces have been known to show a duty of 20 cwt. and under for several weeks together, whereas for a whole year, when the con-sumption is accurately taken out from the stocks, so far as I am aware, there is no such instance. It must be allowed, however, that a duty of under 19 cwt. for three years' running in even a hematite furnace is very good work; and I would draw the attention of the meeting to the fact that this was effected with stoves of the ordinary pipe construction, which is just now subject to so much disparagement. They are, however, fample dimensions, comprising 9600 square feet of heating surface, exclusive of the sockets, while the coke is good and the material smelted is hematite, also of good

'There is another point to which I wish a furnace, viz., the distribution of the charge.

Let us take two imaginary sections of a charge in the neighborhood of the tuyeres. We will suppose one to consist of an outer ring of ironstone and lime with a central core of coke, while the other has an outer ring of coke with a central core of ironstone. need not ask the question which would be the most effective arrangement of the two when the blast is turned on, but it is really only an exaggerated illustration of what we ave to aim at. We want to command the highest possible temperature in the hearth and to do this we must have as much combustible material as possible opposite the tuyeres and above them. This desirable condition is in a great measure a function of the distribution of the charge. We must feed the coke as much as possible toward the sides of the furnace and keep it there in its descent. It has generally been supposed that the success of the modern bell and hopper is mainly due to the fact that it cause the larger lumps of stone to rebound toward the middle, and thus keeps the center of the furnace free and open. As opposed to this view, I think there is nothing more likely to cause scaffolds than to allow the small stone and mine dust to lodge at the sides. But there is another feature in the case. The coke is lighter than the stone and of a more linging character, and if it is shot toward the walls there is no reason why it should remain there, unless it is diverted by some projecting shoulder. It is too much to say that all the coke should be tipped to the sides and all the stone to the middle, but we may fairly conclude that if more combusti-ble material occupied the outer circumfer-ence and could be made to maintain that position down to the hearth, we should then have less danger of scaffolds, the temperature at the hearth would be higher and the reduction of the ore preparatory to its fusion by the ascending gases would be more effect-ive. Such a distribution of the charge is only to be brought about by a careful consideration not only of the lines of the furnace, but of the size and angle of the bell, and even the possibility of gaining an advantage by modifying the present system of

charging is well worth attention.
"My object in troubling the meeting with the above rather speculative remarks is not to divert attention from or disparage the improvements which have taken place in stove construction, but to suggest that a little more thought might advantageously be bestowed on other matters, even if they appear to be of minor consequence. The introduction of the regenerative principle by Sir William Siemens, the boldness by which the problem was attacked by applying that principle to blast-furnaces, by Mr. Cowper and Mr. Charles Cochrane, and the subsequent perseverance of the late Mr. Thomas Whit-well, have undoubtedly effected a great work. I believe, in fact, the time has come when, in the designing of new plant, no more cast iron stoves will be built. Nevertheless, it would be a rash conclusion to sup-pose that with the fire-brick stove, we have arrived at the consummation and final wind-ing-up of all blast-furnace improvements. I New Britain, Conn. yet attain to a higher standard of efficiency

A Traveler's Qualifications.

The Crockery and Glass Journal tells the following good story of a well-known travel-in man in the clothing line. He boarded an Elevated Railroad train at Franklin street, and a reporter who recognized him noticed that he carried under his arm a formidable bundle of newspapers and periodicals. There were, in addition to copies of several of the daily papers, issues of the trish Nation, the Independent, the American Hebrew, the Freeman's Journal, Harper's Bazar, the Clipper the Baptist Weekly, the Churchman, and various trade journals and reviews. The collection was remarkable because of the widely differing character of the publications and the topics of which they made a specialty.

About to start a news-stand ?" asked the reporter of his friend as he sat down beside him.

"Going to become an editor ?"

"No; I'm still in the same old line, selling clothing for the million at prices utterly beyond competition."
"What in the world are you doing with

all those papers, then i Surely they can't be a part of your stock in trade—your sam-"No. they're not samples, but they are a

part of my stock in trade, and a very important part."

bortant part."

"Will you tell me what part they play in the sale of shoddy trousers?"

"Yes. I will reveal a trade secret, and one that I consider a very valuable one. I read every one of these papers nearly every week, and a great many more not included in the list you see here. I read as many papers each week, in all probability, as does the editor of any daily paper, and, in addition, I keep up with the current literature of the day, and all theatrical, musical and sporting

events, and am constantly 'cramming' up ought not to be accepted as a true criterion of what the furnace was capable of doing over an extended period. I think we are bound to agree with this, because in this discount of the furnace with this because in this discount of the furnace with this because in the furnace of the furnace with this because in the furnace of the furnac

"When I went into the business of a comwhen I went into the business of a commercial traveler I intended to make a success of it. Most men in the profession—for I hold that when the business is properly done it rises to the dignity of a profession devoted their leisure time to story-telling, billiard playing and other recreations. I made up my mind to master the business, so that I could not only get, but keep, custom-ers. This was a score of years ago. I no-ticed that a customer was more pleased to meet a drummer who could talk intelligently upon some subject in which he was interested than one whose merits, outside his sample trunk, consisted of his ability to tell a good story or to buy unlimited cigars and drinks. So I began to read. The daily papers gave me a superficial knowledge of everything, and I read both sides politically. everything, and I read both sides politically. The newspapers of those days didn't treat matters so fully or intelligently as they do to-day. Consequently, I supplemented the information I got there by reading the weekly papers or well-conducted monthly publications and quarterlies which treated special topics exhaustively. I had both Eutopean and American real training. ropean and American politics, and social, sectional, religious, financial and a hundred other topics at my fingers' and tongue's ends.
If I had a customer in view, I found out his
peculiar hobby, called on him and talked to
him about his hobby. That pleased him. He
became a good fly for this very greedy spider. of course, I didn't forget to mingle with my specialty as a heavy man the low comedy element—that is, the story-telling and joke cracking. Nor did I neglect the social part of my duties—that's what we call cigars and drinks. The scheme worked admirably and paid well. I got new customers and held them, because I kept pace with them on their particular hobby. Some of them, I really believe, were glad to see me come around. I gave up my salaried position and went to work on commission. The general went to work on commission. The general plan worked so well that in every city I visited I made it a point to read the daily papers thoroughly for their local news alone before I visited a customer. So far as I could, while flying about the country, I kept track of what were distinctively matters of interest to particular localities only. "My experiment has convinced me that the newspapers were the great educators, and

from them I managed to keep posted on art, literature, the sciences and the thousand and one topics with which I deemed it necessary to keep acquainted to meet the as many dif-ferent hobbies of my customers. There were among my victims a large number of Germans and Frenchmen, and I wanted to cultivate their trade, so I went to work as methodically as I had done in my newspaper scheme, and studied both languages, and now I speak both, and have added to my list of papers several printed in those languages, and some of them published abroad. I have also learned to read both Italian and Spanish, and to speak a little of each. These accomplishments are trump cards, I find, in the West, particularly where a merchant is pleased to have you chat with him in his own language. My knowledge of these languages language. My knowledge of these languages I have kept a secret, so far as my associate drummers are concerned. Some of these are of German and French birth, and are especially engaged to handle that trade in the West and South. They have always been free in talking about their business plans and their engagements with persons of their own pationality, but selling other. of their own nationality, but selling other lines of goods. The secrets they have thus innes or goods. The secrets they have thus unwittingly put me in possession of were often of much value. Many times a revelation of their plans has been made in this way which has enabled me to forestall a rival that I feared in a particular locality and didn't fear in another. For instance, time and again I have mapped out a route for my time and because of a chear remark drown. trip, and because of a chance remark dropped in German or French have changed my entire route, and been enabled to precede a rival line and make sales in the cities he had unwittingly given me notice he was to visit on certain dates, leaving customers that I was sure of until I could attend to them at have endeavored to point out one field for investigation which might prove a fertile one. There may be others. We must all sincerely trust there are, and that we shall place as to my acquirements has proved golden. A drummer can't have too much education, you see, providing he knows how to use it, and providing it is of the kind that

he can make use of among his customers.
"See what I carry around with me just for use in case of an emergency among the merchants of the Southwest exclusively. I know the record of every trotting horse of any consequence in the country, the exploits of any running horse, the standing of every base-ball club and every individual player, and yet I very rarely attend a horse race or ball game, because I don't have time. Every merchant in that section is up to that sort of thing, though, and I have to be prepared to meet and talk with them on these their hobbies." their hobbies

"How in the world can you carry all this

information about with you?"
"It is easy enough now. My first experience when I adopted my newspaper reading plan got me into the habit of memorizing. It came hard at first, but now it has become a second nature with me. I read rapidly, and don't believe I forget anything I read, though, so far as I can see or know, make no special effort at memorizing or charging my mind with anything, unless it is something of special importance, or which strikes me as a specially good point on some subject in which I know a customer of mine to be deeply interested. The whole system is easy when one begins young and goes to work right. If young drummers would adopt my plan instead of devoting their energies to the mysteries of poker, to the storing up of shady stories, or the culti-

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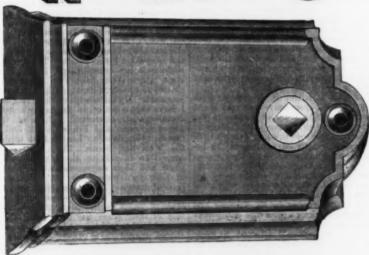
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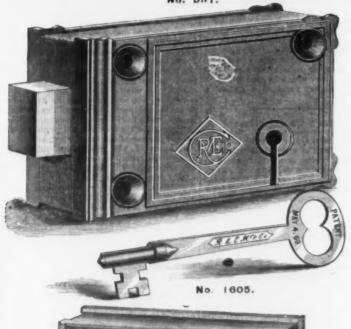
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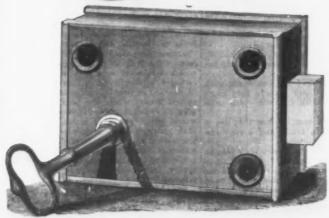
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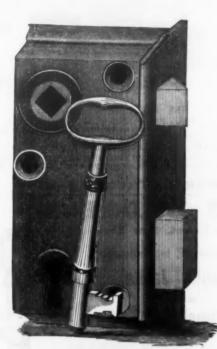




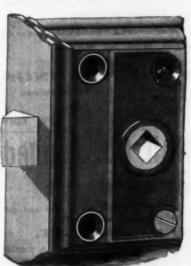




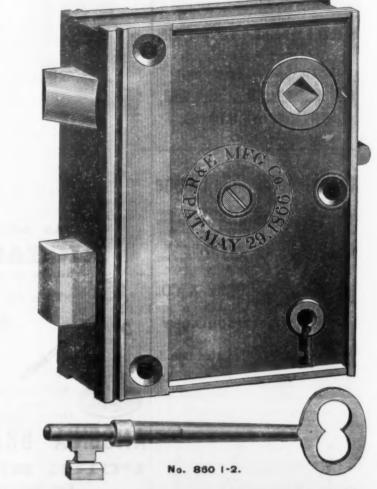
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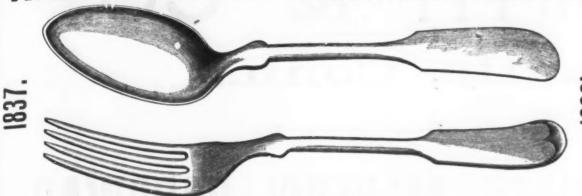






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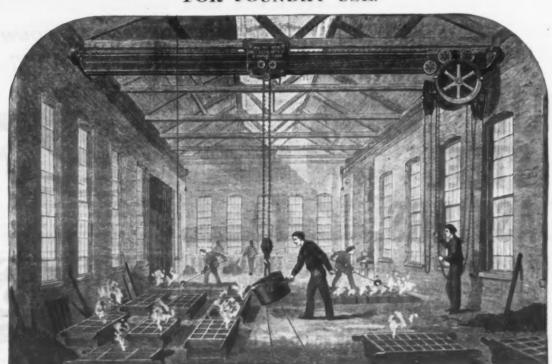
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The New Standard of Time.

Prof. H. A. Newton, of Yale College, is reported as being enthusiastic over the adoption of the new standard of time in the Eastern States, which will go into effect on November 18. Speaking to a correspondent of one of the daily papers, he said: "There of one of the daily papers, he said: "There has been much inconvenience occasioned by these differences in time. Why, it came out at the Legislature of this State no longer ago than when the matter of the adoption of Connecticut standard time was brought up, that the people of the city of Hartford alone were laboring under the disadvantage of having three different systems of time to cope with. Some of their trains left on Boston time, others on New York time, while in the city Hartford or local time was used. You can see for yourself what the inconvenience must have been. Here in New Haven we were once using time that was four minutes faster than the New York time used by the railroads. It caused much trouble. The the railroads. It caused much trouble. The new system has not come up without opposition. On the contrary, it has received the severest friction, and that is one thing that assures its success. It is a result of the recent convention of the railroad men at Chicago. These realized that they needed some common standard of time not only for their own heafth but for the convenience of their own heafth but for the convenience of their own benefit, but for the convenience of their

"The system as arranged is, I consider. the best I have ever investigated. When once it is adopted I do not believe it will ever once it is adopted I do not believe it will ever be changed. Four meridians have been taken. The first is for the Eastern section of the United States and is the seventy-fifth meridian, which passes nearly through Phil-adelphia. It is calculated that all New York railroads, and very soon all the roads in the eastern part of the country, will adopt this time, which will be 3 minutes and 58 sec-onds slower than New York time, and 5 hours slower than Greenwich time. The second slower than Greenwich time. T meridian, the ninetieth, is just 15 The second west, and will pass through the cities of St. Louis and New Orleans. This is the central division, New Orleans. This is the central division, and will fix the time for the roads in the Mississippi Valley section. The time at this point will be just one hour slower than at New York, or six hours slower than at New York, or six hours slower than Green-wich time. The third meridian, the one hundred and fifth, will run through Denver, the time being seven hours slower than that at Greenwich, while the fourth, the one hundredth and twentieth meridian, will control the time for the Pacific Coast, and will run through Carson City, and the time there will be eight hours slower than at Greenwich. On the Atlantic Coast the seventy-fifth ineridian was chosen, because it was the one to be conveniently used and ran the closest to the center of population of the country. I have reckoned that, including the places which are but 10 to 15 minutes distant from the seventy-fifth meridian, there will be a population of more than 12,000,000 people near to this meridian in the United States.

"The system will not go into effect in the Western divisions immediately. It is needed in the East. The arranging of the times in the Western divisions will be a lighter mat-ter, as you will see they differ only by even hours from our time and from Greenwich time. The minutes and seconds will be the same. I regard the innovation as a capital step toward the settlement of these differences upon the matter of time. All the pub ences upon the matter of time. All the pub-lic clocks should be at once regulated with the time as adopted by the railroads on the morning of the 18th of November, and they probably will be, and then all trouble arising from differences of time will have come to an end. Probably there will be not a few people who some time during the day will come to a realizing sense of the fact that their time-pieces are 3 minutes and 58 seconds fast. But all they will have to do will be to stop them for a little while. I presume the change by the railroads will be made between the night of Nov. 17 (Saturday) and the following morning."

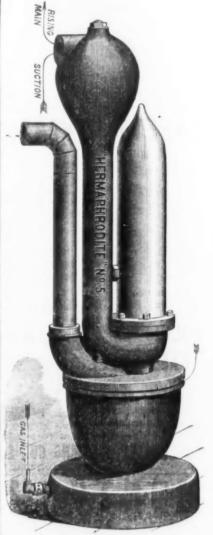
Modern Ordnane .- According to the London Ironmonger, gun-making is almost at a standstill in the Government factories at Woolwich, and orders are anxiously awaited to make up for lost time. The transition of the national armament from muzzle-loading to breech-loading is still suspending new operations and arresting new enterprises, and scarcely a large gun has been made or a heavy cuit turned out for five or six months past. The introduction of steel, only in the experimental st has quite supplanted wrought-iron bars, and the rolling and coiling mills are conse-quently almost closed. The gun factories are, however, busy, owing to the additional labor involved in constructing the fittings for the breech-loading appliances, which require great ingenuity and nicety of construction, and the character of the handicraft which at the present time distinguishes the department has not been equaled since breech-loaders went out of fashion 20 years ago. The cost of the new guns must necessarily increase with the amount of skill which they involve, and the newer guns which are coming, built up of solid steel castings, must also lead to a heavy cost in comparison with the cheap system of gunluilding, which is evidently to be superseded at an early date. Very large guns of steel are, however, remote probabilities, as the national factories can east only 11 tons of steel at one casting, and much more than that will be required for guns of the monster type which appear to be called for by the strength of modern armor. The relative advantages of steel hoops and wrought-iron coils may, however, be regarded as decidedly in favor of the former, tor, though the coils possess ductility and elasticity in a superior degree, the numerous joints are an indispensable weakness, from which the solid steel, with all the faults inwhich the sond steet, with all the faults in-herent to every mere casting, is free. Trials have been made for combining the two sys-tems by making coils of steel, but they are understood to be the reverse of encouraging.

special qualities at this time is of interest to ably improved.

the trade, since it is the season of the year when stove and furnace men are in the market for material of this character. This house also carries in stock tin plates and block sheet iron of all grades, from the best to the commonest used for stove-pipes. They also do a job business in galvanizing and

Riker's Calorific Positive Pump.

The accompanying engraving represents a new positive pump intended for a variety of positions where it is necessary to lift a moderate quantity of water. The size shown in the engraving is intended to throw 200 gallons of water 50 feet high per minute, the motive power being in this case a gas flame. The machine belongs to the Savary class of pumps, in which water is drawn into the machine by means of a vacuum, and thrown out again by the pressure of steam. So far as we know, it is unique in forming steam only as it is required. A steam generator is contained within the cylindrical base, and supplies steam to the copper cylinder above it and on the right-hand side of the machine. The water is displaced from this receiver until about three-quarters of its contents



Riker's Calorific Positive Pump.

have been driven out. At this moment this steam is suddenly condensed and a vacuum formed, filling the cylinder with water from the well or other source. Steam is then again formed in the reservoir and the opera-tion repeated indefinitely. The pump we again formed in the reservoir and the operation repeated indefinitely. The pump we saw in operation not long ago was making strokes at from ½ to ½ minute intervals. There are no working parts—or, perhaps, more correctly speaking, movable parts—except two check-valves, one in the suction and one in the discharge pipe. The action of the machine is entirely automatic, and, after being once started, would apparently run as long as the gas supply was continued. run as long as the gas supply was continued. At each discharge just enough water is converted into steam to produce the required pressure and force the water into the receiver. As we understand the working of it, it is impossible to exceed the initial p ure under any circumstances. The machine in operation to which we referred is using, we believe, about 20 cubic feet per hour and raising 200 gallons of water about 50 feet high. The inventor has made one of the most ingenious applications of the cld Savary invention which we have seen. Fred Adee & Co., of 52 Cliff street, New York, are the sole agents.

The manufacture of fine machine tools, which in busy times forms an important branch of industry, is of late very dull. Even firms of the best repute, such as ordinarily employ several hundred hands and have enemploy several nundred hands and have en-gagements many months ahead, complain of the paucity of new orders. "When we are doing so little," said the representative of a leading house, "you may be sure that dull-ness is general." The explanation offered is ness is general." The explanation offered is overproduction." A fine tool—a lathe, for example-does not soon wear out. Once made, it lasts long and is generally at work. Under the stimulus of railway demands, the shops throughout the country have been supplied. Orders for locomotives and sup-plies of tools for new enterprises of all sorts have measurably ceased, and just now there are no signs of a speedy revival. A more ready market for railway bonds would help things, but the indications are that there is a check somewhere in the nature of a reaction. Manufactures have been pushed to a point where export mar-Messrs. Hoopes & Merry, proprietors of the West Side Galvanizing Works, 535-547 West Fifteenth street, New York City, are directing attention to the galvanized iron made by them, bearing the brands of "Lion" and "Phenix." Their announcement of the street wherever they are known, and so it would be with many other products of industry, if opportunities abroad had been suit-

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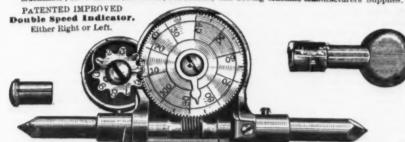
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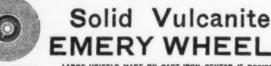
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B represents that pat of the packing which when in use, is in contact with the piston rod.
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NEW PUBLICATIONS.

Summary of the Law of Patents for Useful Inventions, with Forms. By Wm. Edgar Simonds; 5 x 7 inches, 3% pages. Published by L. K. Strouse & Co., New York. Price, 3%

The title is unfortunate, as indicating an abstract of the laws relating to patents probably of a good many different countries, instead of which it is confined very properly to one country—our own—as much as one book, or, for that matter, one man, can exhaustively canvass, and instead of being confined to the law alone, gives what is of more practical importance, for much of the law is not enforced to the letter—the practice—the interpretation and application of the law by

Mr. Simonds is in active practice as a lawyer, devoting a large part or the whole of his time to patent cases. Possessing rare physical power and a robust energy and vigor physical power and a robust energy and vigor of intellect rarely surpassed, he has made a book which is not lacking in positive assertion of his own individual opinions on the several important questions. His opinions are valuable. In addition, he has quoted largely from the United States Supreme Court and the subordinate Federal courts in Court and the subordinate Federal courts in the exact language of the judges, always en-titled to the highest consideration, and when accompanied, as in this case, by the views of a good patent lawyer as to the general effect of the whole, it is probably the best—cer-tainly a good—form, in which to present the practice both to the profession and the masses. Mr. Simonds' treatment of a question of much interest, the law of reissue, we quote at length, as follows. Mr. Simonds

The position taken by the United States Supreme Court in the case of the Edward Miller & Co. vs. The Bridgeport Brass Company, and other cases of like import which have followed it, is a long stride in advance of its previous position. The present position of the Supreme Court is, in substance, that a patentee shall not broaden his patent by a reissue unless the application for reissue is made with diligence, and with no unreasonable delay after the issue of the original patent, and before other parties are in the field with modifications or improvements which the reissue will cover; that such im-provements as a patentee describes in his original patent, and does not claim, he must claim in a separate application, or else he abandons them to the public, and that after the lapse of years a patentee may not change the ground of his invention by reissue, even though he technically and literally narrows his claim.

In the case of Miller vs. The Brass Company, the Supreme Court said: "Nothing but a clear mistake or inadvertance and a speedy application is admissible when it is sought merely to enlarge a claim." "The right to have it corrected is abandoned and lost by unreason-able delay." "An omission to claim other devices and combinations apparent on the face of the patent are in law a dedication to to the public of that which is not claimed." "It is competent for the courts to decide whether the delay was reasonable, and whether the reissue was therefore contrary to law and void." In the case of James vs. Campbell. which immediately followed the case last referred to, the Supreme Court pro-ceeded as follows upon the same topic: "If he was the author of any other invention than that which he specifically describes and c aims, though he might have asked to have it patented at the same time and in the same patent, yet if he has not done so, and afterward desires to secure it, he is bound to make a new and distinct application for that purpose and make it the subject of a new and different application." "When a patent fully and clearly, without ambiguity or obscurity, describes and claims a specific invention complete in itself, so that it cannot be said to be inoperative or invalid by reason of a defective or insufficient claim, a reissue cannot be had for the purpose of expanding and generalizing the claim, so as to make it embrace an invention not described and specified in the original." "If, by actual inadvertence, accident or mistake, innocently committed, the claim does not fully assert and define a patentee's right in the invention specified in the patent, a speedy application for its correction before adverse rights have accrued, may be granted." In the case of Race vs. Matthews, 21 O. G. 349, which fol-lowed soon after the case last mentioned, the Supreme Court said: "It was not necessary for the patentees, Race and Matthews, to enumerate all the known functions of these frost jackets in their original patent, and as s.ied patent have split up and divided the elements of their invention and claimed them s-parately, and not as a combination. Of course, this enlarges the scope of their patent, the separate claim: embracing fewer elements in combination than were embraced in the claim of the original patent. No one could infringe the original patent unless he used all the elements of the combination.

"Any one will infringe the reissue who uses any of those elements which are now sepa-rately claimed. " " It cannot be denied that each of these separate claims is broader than he claimed in the original patent, as they are put forth in the reissue
14 years after the original patent was
granted. The latter showed on its face
that these broad claims were not made, and
if the patentees were really the inventors of an independent jacket standing loosely on the elbow of the main, when apprised that it was not claimed in the patent, they ought to have used all diligence in surrendering it and having the mistake corrected." "There is a wide departure from the original inven-tion in this—that the subject of the latter was a jacket or casing whose top was in-closed in and covered by a flange projecting from the hydrant, which effectually pre-vented the removal of the jacket without re moving the hydrant also, and which caused the hydrant to be raised when the jacket was lifted by the frost. In the reissued patent nothing is said of this arrangement of the top of the jacket and the claims ignore it altogether, so that, as already intimated, the patent as it now stands would cover such a jacket as that described and claimed

in the complainant's patent of 1869, which slides like a sleeve over the hydrant at the top as well as the bottom. The reissue is not only for a broader claim made many years after the original was granted, but is for a different invention; therefore, so far as the jacket is concerned, we think it can-m t be sustained."

In the case of Heald vs. Rice.1 which followed soon after the case last mentioned, the original patent was for an improvement in return-flue boilers, with a casual mention of a straw-feeding attachment for the furnace, and in the reissue a claim was procured for a combination of the straw-feeding attachment with a return-flue boiler. The Supreme Court held the reissue void as being different invention from the original, and said: "In the present case the extent of the identity of the invention in the original the identity of the invention in the original and reissued patents is to be determined from their face by mere comparison, notwithstanding what was said in Batten vs. Taggart (17 Howard, 74), and consistently with Bischoff vs. Wetherelt (9 Wellace, 812), according to the rule laid down in Seymour vs. Osborne (11 Wallace, 545), and the Powder Company vs. Powder Works (19 U. S. 134)—that is, if it appears from the face of the instrument that extringic evidence is not the instrument that extrinsic evidence is not needed to explain the terms of art or to apply the description to the special matter so that the court is able, from mere comparison, to say what are the inventions described in each, and to affirm from such mere comparison that they are not the same, but different, then the question of identity is one of pure construction, and not of evidence, and consequently is matter of law for the court, with out any auxiliary matter of fact to be passed upon by a jury if the action be at law."

The Suprome Court has not specifically said, as it cannot specifically say, how long a patentee shall be allowed to wait, after the issue of his original patent, before making application for a reissue which shall broaden his claim, and has said in substance that un-reasonable delay will not be permitted. What constitutes un ensonable delay in any particular case will depend upon the facts of that case, and a time which would be permissible under one set of circumstances viously will not be permissible under another and different set of circumstances. For in-stance, it is obvious that a longer time would be allowed for the procurement of the reissue in the case where no interfering interests arise in the meantime than in that case where the reissue is obviously desired for the sake of covering modifications or improvements which have been introduced into the market by others since the issue of the original patent. One or more of these decis-ons of the Supreme Court make an allusion to the two years allowed by law, wherein an inventor may permit his invention to go into public use without invalidating his right to the original patent, but it is not to be inferred therefrom that the same delay of two years is to be allowed in all cases for procuring re-issues of original patents. A circuit judge, issues of original patents. A circuit judge, in speaking of this question, says that the Supreme Court "does not seem to hold that two years are to be allowed in which to reclaim what is so described," and another circuit judge, in speaking of what Justice Bradley said in Miller vs. Brass Company, says: "He intimates that two years, in analogy to the law of forfeiture, would be the utmost limit of time, but, as I understand the utmost limit of time, but, as I understand the opinion, that anything like two years

would be inadmissible in ordinary cases." 3.

It does not follow that a reissue is valid from the fact that its claim is narrowed as compared with the original claim, for in the reissue in question, in the case of Heald vs. Rice, before mentioned, the claim was of that class; the original claim being for an improvement in a return-flue boiler, the reissue claim was narrowed by making it to cover a combination of the return-flue boiler and a straw-feeding attachment, yet the claim was held void as being a claim for a different invention from that described in the original patent. And the point is one easily understood, for the original patent set out that the improvement pertained to a return-flue boiler, mention of the straw-feeding attachment being merely incidental and casual, and, when the patentee brought in the straw-feeding at achment as a feature of the invention, he departed by a palpable in-terval from the statement of his original.

We copy the above in full both for its in trinsic value and as a favorable sample of the work. There are ample references to full reports of the cases from which the extracts are selected. Mr. Simonds is, as in his previous works, profuse in the elabora-tion of ferms in the different branches of proceedings on patents. They appear in the form of an appendix to the main book.

NGENIEUR KALENDER. By P. Stublen. Published by G. D. Baedeker, Essen, Germany. Size, 6 x 3 1/4 inches; 152 pages.

Mr. Stuhlen's little work has come to us regularly for a number of years past, and from the reviews published by us at different times the reader will probably have obtained a pretty fair idea of the general arrangement and character of the work, thus making it unnecessary for us to again give extended particulars. The book is in prac-tically the same form as in previous years, tically the same form as in previous years, certain departments, however, having been considerably enlarged, as, for instance, that relating to chemistry. The tables of atomic weights have been carefully prepared, and will no doubt be found valuable in many instances. In the department relating to turbines, the particulars submitted by R. M. Daelen will be found an acceptable addition to the book. The same may be said of the portion treating of weights and measures, machinery and a number of other subjects. A diagram of no little interest is that relating to the average steam pressures in cylining to the average steam pressures in cylinders for different ratios of expansion and percentages of clearance. As in all former issues, the matter has been arranged in two parts, the second of which is in the form of a small pamphlet, and contains useful table giving the circumferences and areas of circles, square roots, cubic roots, logarithms, trigonometrical functions, and a large num ber of other particulars of equal interest and importance

1 91 O. G. 1443.

Mackay vs. Jackman, 12 Fed. Rep. 615. Jones vs. Barker, 11 Fed. Rep. 597.

The Iron Age

Metallurgical Review.

New York, Thursday, November 1, 1883.

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JOHN S. KING,		Business Manager.

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British Iron and Steel Exports.

The British Board of Trade returns for September illustrate the remarkable vigor which animates the iron trade of the mother country. Although the British exports of iron and steel to all countries fell from 380,-506 tons in June to 361,414 tons in July, and it was generally expected that succeeding months would show a greater decline in consequence of the diminishing demand from the United States, yet August showed a recovery to 365.500 tons, and now September scores a further gain to 367,361 tons. This decided turn in trade shows that other countries are increasing their consumption of British iron and steel in sufficient quantity to compensate for the failing demand from the United States. The figures for the nine months ended September 30, show that while the current year's exports are about 10 per cent. below those of 1882, they are about 10 per cent. higher than those of

1001	, tare	ngui	68 D	emg	20-	,	4.	01	4	,,	•	0	-		Tons.
First	nine	mont	hs of	1881											2,822,417
8.0	0.0	6.0	0.0	13.2											3,314,513
															8,066,654

In the first nine months of the present year the British exports of iron and steel to the United States foot up 540,079 tons, which is certainly a very considerable quantity for this country to absorb in a period of depressed trade and declining prices. It is, however, very much below the quantity exported hither in the corresponding period of 1882, which reached 950,905 tons. For the past three months our purchases of · British iron and steel have been seriously dwindling, the highest point for the year having been reached in July, when 70, 183 tons were shipped to us. In September the quantity sent was only 55,144 tons. The October shipments will very probably be still less. The following table exhibits the course of this trade for each of the first nine months of the present year :

February March	45,301 55,098 62,913	June July August September	70,423 66,633
May	60,571		

with August, was in pig iron principally, capacity has not been severely tested for sevnext in rails, and to some extent in hoops eral years. This year the quantity of work and sheets. There was a slight increase in turned out is slightly under that of last

present the complete details of the move-

ment in the two months comp	pared:
Pig iron. Bar, bolt, &c. Rails Hoops and shets. Cast or wrought. Old iron. Unwrought steel	Aug. Sept. Tons. 29,374 20,819 306 1,101 9,683 6,821 3,667 1,181 2,016
Total	45,519 21,114 88,944 21,200
Grand total	66,688 55,144

The falling-off in the United States demand is shown more plainly by the abovemade separation of tin plates from other iron and steel. Excluding tin plates, the decrease from August to September was 25 per cent. Tin plates formed 32 per cent. of the August shipments and 38 per cent. of the September shipments. It is a curious fact that 50 tons of iron rails were among the goods exported to this country in September.

Some interesting details are supplied in the following table, which shows the shipments of miscellaneous metals, hardware, &c., from Great Britain to the United States in August and September:

	August.	September.
	Lead, tons	56
	Tin, tons 43	17
١	Steam engines, £ 119	4,059
ı	Other machinery, £ 19,608	23,216
1	Hardware and cutlery, £ 33,606	30,479
1	m	

The increased shipments of steam engine those of August, are worthy of notice.

The Architectural Iron Trade.

In this city and its immediate vicinity there are about a dozen establishments engaged mainly in the manufacture of iron castings for building purposes. Their trade is principally among those who are erecting buildings for stores, though office buildings and public tuildings absorb a considerable part of their product. The iron beams and girders used in buildings are made of rolled iron, while what is commonly called "architectural iron" is cast. The work of the rollng mill is ordinarily not visible about a building, being covered by the flooring, but the product of the foun lry is seen in the huge columns which support the front of an imposing store building, the gratings and rault lights which occupy a portion of the sidewalk, the elaborately ornamented courses which take the place of expensive cut stone and the slender window frames which enable a store front to be so fitted with gla-s that it presents the appearance of a huge sash, and at the same time secures all the light po-sible. Stairways, railings, steam heat radiators, verandas and roofs are also part of the products of these foundries. For several years the architectural-iron

usiness has not flourished correspondingly with other branches of the iron trade. The erection of cast-iron store fronts, which were at one time very popular, has of late years fallen off considerably, in consequence of erroneous views among people generally in regard to the behavior of such fronts when subjected to intense heat. In this line of work, where there should have been growth, there has been positive shrinkage. The architectural-iron trade felt very severely the effects of the commercial depression of 1873-78, and when the reaction set in which awakened the industrial forces of the nation to new life in 1879, a local strike among the molders of this neighborhood prevented the architectural-iron works from securing their full share of the benefits of the "boom." There has latterly been great activity in the erection of new buildings in this locality, but the construction has been mainly in the direction of dwelling and apartment houses, in which architectural iron is used to a very limited extent. A few stores and several very large office buildings have been put up, and these, while not engaging the full capacity of the architectural-iron works, have developed a tendency amo architects to employ iron in a novel form which bids fair to become quite popular, and in the course of time to greatly increase the demand upon these works. The brick and terra-cotta style needs something a little more elaborate in the way of ornament, and this can be furnished much more inexpensively in cast iron than in cut stone. Iron used in this way does not detract from the fire-proof qualities of a structure, but is in many respects preferable. The better class of apartment houses are now being built fire proof, and it is anticipated that the tendency in that direction will be very greatly promoted by the desire of everybody to be as safe from danger of fire as possible, and the consequent increasing demand for apartments in such Fire-proof structures of this kind require a great deal of architectural-iron work. Much confidence is felt in the early revival of store-building, which will also bring with it a heavy demand for iron building materials. There is a scarcity of stores in many parts of the city, although store property is generally very remunerative, paying a much heavier rate on the amount invested than most other kinds of property. The attention of capitalists cannot fail to be attracted to such an inviting field, and when a movement is made it will undoubt-

edly be an important one. The architectural-iron works about this city and vicinity are estimated to have a melting capacity for 15,000 to 20,000 tons of The falling off in September, as compared iron per annum. As above noted, their

dant as usual, but the outlook for the future, have to be endured before the promises business is destined to come. The prejudice as follows, in tons: against iron fronts will also undergo a Year. Australian. modification with the progress of time, and there will be a revival of the erection of such structures under conditions which will insure as great safety from fire as could be realized by the use of any other materal. Such fronts are especially desirable on the narrow streets which are found in the greater part of the business section of this

For the prejudice against cast-iron fronts the newspapers are primarily responsible. To the ordinary reporter an iron front suggests the inference that the building is intended to be fire-proof, whereas iron has been used simply for economy, being cheaper than most other materials, and the interior may be a most inviting tinder box. When such buildings are burned, the statement is often made that the casualty happened to an "iron building," coupled with unjust reflec-and other machinery in September, over fire-repellent qualities than one built of brick or of stone. Iron fronts have often been found standing almost intact after a severe fire, even when adjacent brick walls have fallen. Chicago to-day contains more iron-front stores than it did before the memorable fire of 1872, which thoroughly tested the fire-resisting qualities of all kinds of building material.

The Outlook for Tin.

Although the deliveries for consumption have been fair so far this year on both sides the Atlantic, the shipments from the producing countries have been so large, as compared with former years, that for a mouth past the value of tin has steadily declined, the supply exceeding the demand, satisfactory though the latter may be. The shipments from the Straits and Australia alone have been, during the first nine months of the year, 19,570 tons to Europe and America, against 15,182 last year, 14,533 in 1881 and 14,648 in 1880. The deliveries in Europe of all sorts of tin during the same time have been 17,248 tons, against 16,701 in 1882, 17,456 in 1881. 15.187 in 1880 and 14,293 in 1879. The net import into the United States during the first seven months has been 6167 tons, against last year, same time, 4902 tons. One of the leading London metal firms remarks, under date of October 4:

The chief interest has again turned to the Amer ican trade. It is asserted by those who are in a position to know that the deliveries for consump-tion there have lately been 1200 to 1200 tons per month, and that for the year they will exceed an average of 1000 tons per month. The stock returns from there are in accordance with such deliveries, but some that are made up here on the basis of last year's deliveries, or thereabout, give as an estimate nsiderably larger figure. It will easily be seen that a difference of 150 tons per month for nine months will cause a great difference, and this accounts for the divergence of quantities esti-mated to be held in America. If the statement of increased to be held in America. It is statement or increased consumption be correct, and we think it is, then we get rid of the difficulty that threatened to arise in this market of an accumulating stock. In point of fact, our stock is now the smallest held for many years, and there seems the smallest held for many years, and there seems no probability of any early addition to it, the increased production in the Straits being neutralized by increased consumption. Our market has shown more life, and the quantity changing hands has been larger than for some time past.

4,150 8,730° 8,035 15,228 14,714 14,401 8,310 2,974 2,807	Stock of foreign in London Tons Tons Tons Tons Straits aftost for London 4,380 5,684 5,532 6,545 Australia aftost for London 60 5,69 5,69 115 Australia aftost for London, including wire advices 60 5,69 220 220 Billiton on warrante in Holland 1,877 1,877 1,890 1,897 Billiton aftost for Holland 2,369 2,116 1,187 Billiton aftost for Holland 2,369 2,116 1,386 Other foreign in Holland 2,369 2,116 1,386 2,360 2,369 2,316 2,316 1,386	Aug. 31, Sept. 30, Sept. 30, Sept. 30, 1883.	Tons. 0,554 (150 kg)	Tons. 1,500	Tons. 30, 1883	Tons. 4,350 4,350 1,377 9,860 2,349 1,002 4,150 15,228	Stock of foreign in London Foreign handing in London Foreign handing in London Foreign handing in London, including wire advices Australian affort for London, including wire advices Billiton in Holland Billiton in Holland Billiton affort for Holland Cutter foreign in Holland Total Fating Company is reserves of unsoid Banca; Stock in Holland Frieding Company is reserves of unsoid Banca; Frieding Company is reserves of unsoid Banca;
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*Estimates vary from 3300 to 4700. We find an explanation for the light London stock alluded to in the above remarks, London and New York mutually draw on temporarily light London stock, in juxtapo- mense strength which have been burst in deserves the name of "Old Style," which

cent. Immediate business is about as abun- pear quite evident if we examine the tin Mr. Keely's confidence, and do not know movement in the London market during the just how near he is to the end of his trouble as measured by the condition of order first nine months of the year, and especially but it is sad that those who have thus fa books, is unsatisfactory. A season of dulness and very low prices will evidently novel feature in it under this change in the now. We trust they will postpone the duty, and therefore of capital interest henceof the future, to which we have referred, forward. The importations into London who undertakes to run a train of cars from will be fully realized. But greatly increased from January 1 to September 30 have been

> 18,684 16,618 14,426 14,960 177 51 151 516 The transhipments to America out of the

above landings have been : 8,829 4,958 8,151 4,523 850 1,179 707 972 49 8,907 5,495

The shipments to America from warehouse have been in the same time, 1883 · London, 2375 tons; Holland, 285 tons; total, 2660 tons

In spite of the delivery for consumption of 1,200 tons last month, the visible supply at New York and Boston on the 1st inst. was as

Sept. 1, stock of tin on this coast..... Total. 1,900 Visible supply...... 4,800

As at the same time there has been a very dull feeling in metals generally among us so far this month, a gradual decline has set in, which may make some headway as we approach the winter season.

Blast Furnace Economy.

The subject agitated by Mr. R. Howson in

his recent paper submitted to the British Iron and Steel Institute, and published elsewhere in this issue, furnishes much food for reflection. Capacity of furnace and temper ature of blast, as he very appropriately states, have long been considered prime factors in questions relative to fuel economy in blast furnaces, and so great has been the importance attributed to them that other points of perhaps no less influence have been practically disregarded. Modeling the interior of furnaces has, in fact, been a rule-ofthumb business, and though questions as to whether the angle of the bosh should be slightly greater or less have been advanced from time to time, the rules ordinarily adhered to are of a very general character. Mr. Howson, as will be observed, holds that the usual form, with the boshes sloping bac1 at a certain angle, and then, irrespective of diameter or position, suddenly turning in the opposite direction, appears highly irrational. being simply a device for catching and holding anything that will stick. In view of existing practical difficulties, however, a radical departure from the present shape, as, for example, the adoption of a furnace having straight sides, would seem out of the question, and only slight modifications can there fore claim attention. Perhaps the closest approximation to the present form is that referred to by Mr. Howson in citing the Treforest Furnace, which is barrel-shaped, and which, in consequence, has no boshes in the ordinary sense. This furnace, as demonstrated by its record for a number of years past, has given excellent results, showing that with some variation in the present form of furnace much more satisfactory figures as to fuel comsumption might possibly be obtained. Aside from this fact, moreover, the danger of scaffolding is greatly diminished, there being nothing opposed to the ready descent of the charge. Bearing upon this particular point, Mr. Howson's remarks on fuel and ore distribution are of interest.

The subsequent discussion of the paper brought out a number of interesting facts relative to fuel consumption for years past, ne effects of variation in black size of hearth, &c. As to the influence of increasing the capacity of furnaces, ironmasters, according to one authority, seem to have considered it as favoring economy in coke. This, though partially true, is not necessarily so in all cases. Coke is saved only by increased capacity, resulting from increased hight of furnace. Increasing the capacity by adding to its width without considering the hight is injurious, and actual results obtained from different furnaces favor this theory. The relative merits of different types of hot-blast stoves naturally received no little attention in this connection, but the length of the discussion, though interesting and valuable, prevents extended quality of which is fully guaranteed to the

We learn with more of pain than of surprise that some of the stockholders in the Keely Motor Company are "beginning to lose faith in Mr. Keely." The reason we "Hendy," for example, has been known are not surprised as well as pained is because all great inventors have suffered from distrust and suspicion during their struggles with the minor difficulties which stand between them and complete success. We have no doubt that Mr. Keely has encountered several of these difficulties, and, if we are in the fact that since the differential duty in correctly informed, one of these is to find a favor of goods around the Cape of Good material strong enough to retain his irresist-Hope has ceased to be levied in this country, ible vibratory force when he has generated ing heavy and the general appearance His workshop is said to be strewn with each other's stock, and that, consequently, a the wrecks of steel and iron cylinders of imsition with a simultaneously heavy New twain, and for the moment he seems to be has been made a trade-mark. The heavy York and Boston stock, has no longer the in the position of the man who discovered the edge on one side of the sheet, which shows significance in the tin markets it had prior to universal solvent, but could not find anything how the plate has been dipped, is evidence the other items. The following table will year, the decline possibly reaching 10 per January 1, 1883. This will, moreover, ap- to keep it in. We have not been admitted to of the genuineness of its quality, even

ginning yet a little while longer. The me Philadelphia to New York in an hour, with only such motive power as can be generated from a teacupful of cold water stimulate to vibration by the harmonious tremblin of a tuning-fork, cannot be expected accomplish it off-hand. The thousand little details of such an invention involve the los of much precious time in perfecting them We do not know that we are any more pa tient or trustful than others, but we ar quite certain that if we had ever experience faith in Mr. Keely's promises, and had given that faith pecuniary value by purchas ing stock in the company, we should not los faith simply because we had lost our investment. That kind of faith is the substance of things hoped for, but not attained, the evi dence of things not seen, and not likely be seen. It ought to outlive an indefinit postponement of Mr. Keely's promised dem onstration, at least while that wonderful man has the health and strength to twang his tuning-fork or wield his fiddle bow Should he die-than which nothing is more certain-we may then conclude that

"The unfinished window of Aladdin's tower Unfinished must remain.'

The Quality of Tin Plates.

In an editorial article on the subject of tin plates, four or five weeks since, we brief recounted some of the changes which have taken place in this trade in a comparative brief period. Only a few months ago con umers were very generally complaining that good tin plates were difficult to obtain, ever hen a willingness to pay a fair price for them was indicated. Now the leading measure nouses are vying with each other in calling attention to strictly first-class plates, which they are offering, with guarantees of quality at prices only slightly in advance of those of plates of an ordinary grada

We have recently had the pleasure of neeting some of the representatives of lead ng tin plate houses, and of examining some of the more prominent guaranteed plates, and in the light of what has been sho we congratulate consumers, and dealers as well, upon the character of the stock now in the market. The use of good plates for vare and for roofing must tend to make the inner's business much more satisfactory han it has been for a number of years past, and thus directly inure to the benefit of both inner and tin-plate dealer. Now that the heat of controversy has passed away and in the light of accomplished results, a survey of the field may be both interesting and valuable.

The first gun in the campaign-going back to the time when the agitation was agains private brands-was fired by Merchant & Co., of Philadelphia, in their announcemen to the trade that a stock of carefully selected makers' brands was always on hand, and that they would, for the future, carry n plates the quality of which was not atteste by the brand of some responsible maker. This house has adhered to the programa then laid down, and has published repeat edly, both in its circulars and in its advertisements, a very complete list of makers brands, from which the trade are invited t select in ordering. While this was a ver long step in advance of anything that had preceded it, there still remained opportuni ties for other houses to hold their position before the trade without imitating the good example thus set them.

The Excelsior Manufacturing Company of St. Louis, was the first, if we mistake not to advertise guaranteed tinned plates. In a circular that was issued early last sun mer, the statement was made that a of plates was then on hand, in the selling of which the quality of every sheet in the box was guaranteed. We had the cur osity to inquire of Mr. Filley, a short tim since, the result of his experiment i this direction. While indicating his satisf faction, he expressed surprise that the demand for good roofing plates was mor pronounced than for good bright plates Other houses have met the same condition of affairs. The experimental lot of tir which the Excelsior Manufacturing Com pany imported was sold to good advantage and the company, we were assured, look forward to an increasing trade in plates the eustomers of the house

N. & G. Taylor Company for a long tim have been selling their own brands 'Hendy," for example, has been known the trade for a long while, and the syste of doing business of which this brand is specimen has been practiced by the hou for a number of years. In response to the general demands of the trade this syste has been extended, and "Old Style roofing tin has been largely advertised We have some sheets of this metal before us as we write. The plate is tough, the coat that can be reasonably demanded by col sumers. In its appearance this plate

though it may compel squaring and trim- petition of outside manufacturers if he our domestic industries. It is unfortunate angle of 38° with the center line of the which he speaks of the marked effects of this, it is evident that this circumstance is no disparagement to its general quality.

It was very natural that, in substituting good plates for those of indifferent quality, some use of terms indicating the return to old principles should be employed. Hence "Old Style" and similar terms adopted by other houses have become appropriate watch- of cheap and generally inferior products, Messrs. Gummey, Spering, Ingram & Co. have for some time past called attention to their "Old Style Pontymister, Redipped or Double Coated Terne or Roofing "Plates." The terms used in this description indicate the anxiety to get back to the kind of plates which were furnished the trade his contract, and must acquire while he has before the patent rolling or stripping process was known to manufacturers. They also tinue manufacturing with citizen labor. The make a specialty of the "Silva" brand which they guarantee as to quality.

The old and well-known house of Phelps, Dodge & Co., New York, in a very dignified manner indicates its appreciation of the demand of consumers at the present time by announcing "Special brands of roofing for choice work." Messrs. W. F. Potts, Son & Co., Philadelphia, are advertising "Old Process Roofing or Terne Plates," and make the statement that a box of 20 x 28 of this plate contains five pounds more metal than any other offered. Samples of this plate, and also of their "A. T. L." bright charcoal, which are before us as we write, indicate by every test which we can apply to them that the quality is in accordance with the makers' statement. The metal in the body of the plate is tough, and withstands the severest double seaming without any indication of a fracture, while the coating is heavy and very evenly laid. Messrs. Lyon, Conklin & Co., of Baltimore, are also among those who are advertising plates the quality of which is guaranteed, and, in unison with a house already mentioned, call attention to "Pontymister" in its rejuvenated

If space permitted we might extend our mention of houses who have been quick to see the signs of the times, and who have put before the trade goods of the exact kind which have been demanded. Very many houses have done this in a quiet way by means of circulars and their traveling salesmen, and their efforts, accordingly, remain unnoticed by the general public. They are entitled to credit in so far as they are honestly trying to raise the standard of quality in tin plates, and to eliminate from the business the element of uncertainty which has hitherto entered into all the calculations of the consumer, and made his purchases of plates largely speculative, with the chances all against him and in favor of the dealer. Buying "a pig in a poke" is all right enough when both seller and buyer are ignorant as to what sort of a pig the poke contains, but a trade of this kind in which the seller knows the trade is comparatively satisfactory to the contents of the poke and the buyer has to purchase to find out, is somewhat too onesided to be satisfactory as a regular business We take this occasion to again remind the

consumer that he holds the key to the situation in his own hands. As long as he wants good plates at a fair price the importers will supply them, but whenever he becomes careless of quality and begins to look for bargains, showing thereby a willingness to be humbugged, he will be inviting a return of the same conditions as are now happily a matter of the past. Importers and dealers are certainly manifesting a willingness to do all that can in reason be asked of them. Let the trade support them in the good work by ordering nothing but plates the quality of which is assured beyond a peradventure.

Convict Labor in New York.

At the November election in New York owever cast or counted, has no other value than as an expression of opinion, and it remains with the Legislature to respect or disregard the popular will, as it may see fit. It is rather an odd notion to manage the affairs of a great State like New York on the town-meeting plan, but this course was adopted simply to afford an excuse for postponing action without formally disregarding the demands of the labor agitators who are clamoring for the abolition of the contract system and the substitution of the Stateaccount system in place of it. If the working classes should secure such a change they would soon be clamorous for the restoration of the contract system. It may be assumed as certain that the people of the State will not consent, under any circumstances, to have the prisons made a burden to the taxpayers, when experience has shown that they can be made self-sustaining and a source of revenue to the State. The choice, therefore, lies between the contract system and the State-account system, and, judged by the standard of competition with citizens, the latter will prove incomparably more formidable than the former has ever been. The contractor has his own capital at stake, and naturally seeks to make all the profit he can. The superintendent of a prison manufactory under the State-account system has the State Treasury for a bank and its revenues for capital. He will make as good a showing as he can, but he will sell his product at some price, and will find abundant excuses in the close comhas the State Treasury for a bank and its part of his message which will treat of the

many of the best roofers insist upon doing his management. Then, even more than now, the odium which attaches to "prisonmade" goods would embarrass their sale. The State could not employ managers who would be as skilled and experienced as suc- the most careful consideration. cessful contractors need to be, for such men could earn more money outside of prisons than in them. The result would be a flood which would be sold at prices calculated to demoralize regular trade all over the country. This is what the State-account system means. The contractor, on the other hand, has not only a profit to make, but a reputation to establish and conserve. He may lose it such a hold on the trade that he can concontract system may be abused, but the abuses are subject to correction. Free and fair competition among those seeking contracts will guard against favoritism, and good prison management will do the rest. There are no inherent objections to the contract system under proper legislative regula-tion, and the injury which it does to citizen mechanics is purely imaginary.

The Condition of Trade.

From all quarters there is now much talk of decreasing production-furnaces blowing out, merchant-iron rolling mills changing from single to double turn, steel works to be closed if present prices cannot be maintained, &c. On the surface these are indications of a dismal outlook for the future. and are frequently accepted as an evidence that the iron trade is becoming more demoralized than ever, but to those who look deeper into the current of passing events there is a feeling of satisfaction with the expected restriction of production. For some time production has been conspicuously in excess of consumption, and as long as that condition of affairs exists there can be no hope of steady prices, but they must continue to droop and fall to lower levels under the excessive competition for the limited available business. The greater the decrease of production, and the sooner supply falls to the level of demand, the quicker will a sound condition of trade be reached. The curtailment of production has been carried further in the manufacture of piz iron than in anything e'se except nais, as is shown by the steady but slow decrease of pig-iron stocks and the improved feeling throughout the trade, although the number of furnaces now out of blast is not so great as the recent extravagant rumors about their blowing out would warrant. Still, enough has apparently been done in the restriction of the production of pig iron to affect the situation and, while there seems to be no prospect of an early advance in prices, the condition of those who are able to produce pig iron and sell it at present prices with a slight profit. With light importations of foreign iron, and with but moderate stocks of domestic iron, and with barely a sufficient number of furnaces in blast to keep up the needful supply, the position of our pig-iron manufacturers to-day is much better than it was last spring. Well-informed men in the trade say he would be a bold speculator who would sell iron for February or March delivery to a foundry or rolling mill at present prices, expecting to purchase iron in the meantime to cover the contract.

The merchant-iron rolling mills now seen to be in the worst position of any branch of the iron trade, simply because their production has not been sufficiently curtailed. The mills show such an anxiety to sell iron that it may almost be said of them, "no reason-State, the question whether the employment weakest establishments, but it would seem it is said, will be materially reduced, more en of convicts in useful trades shall be con- to be the part of wisdom for them to stop at pecially in the interest of the newspaper tinued or discontinued will be submitted to once, if they can, before they sink their press, bringing the Old World and the New the people for an expression of opinion. The entire capital in the effort to keep afloat as into a closer sympathy. long as their neighbors. Cheaper pig iron would not help them. The only remedy is the heroic one. A bushel of corn cannot be crowded into a peck measure, and the entire product of the merchant rolling mills cannot be forced on a greatly diminished market without a serious derangement of values and the demoralization of trade.

> The proposition to reprint that portion of the Transactions of the American Society of Mechanical Engineers containing the disassion on the subject of a Government appropriation for testing materials, in sufficient numbers to place a copy in the hands of every Member of Congress, is one that commends itself by reason of its importance. The cost certainly cannot be large, and we feel as though the money would be well expended. The necessity for Government aid and for an appropriation to make the Watertown testing machine useful in proportion to its power ought to be apparent to every member of the society, and the value which members will receive, either directly or indirectly, will be far greater than the necessary expenditure.

President Arthur is taking counsel of judi-

ming of the sheet in working it. Since fails to more than meet the expenses of that it should seem necessary to refer to the canal. subject at all, if we may judge from the injurious effects of agitation in the past, and it is to be hoped that any new movement in the direction indicated will be made only after

Specie and Currency.

The Director of the Mints has prepared a statement showing the specie and paper circulation of the United States on the 1st of October, 1883, of which the following is a tabulated synopsis

	In the Treasury.	In banks and general circulation.	Total.
Gold bullion Silver bul-	\$61,683,816		\$61,683,816
Gold coin Silver dol-	5,107,911 144,446,726	\$400,065,978	5,107,911 544,512,699
lars. Silver frac-	114.587,372	89,788,527	154,370,899
tional coin Gold certifi-	26,750,161	54,170,268	80,920,424
cates Silver certi-	27,480,800	55,014,940	82,495,240
fleates	15,568,280	78,921,961	94,490,241
U.S. notes Nat'nl bank	87,194,420	309,426,596	346,681,016
notes Frac'n'l cur-	6,017,710	347,894,961	818,342,671
rency	5,803	6,987,103	6,992.906
Total	\$438,842,499	\$1,291,755,824	\$1,780,597,828

The Director of the Mints estimates that if the amount and character of the money held by the national banks remain the same as at the date of their last published statement, the comparative changes in the circulation held by the public and banks other than national have been as follows:

Descrip- tion.	October 1, 1881.	October 1, 1884.	Increase	Decrease.
Gold e'n S'iv'r dol Fract'n'i	\$320,002,688 30,801,231	\$327,843,157 35,783,527	\$6,9 0,469 4,982, 96	*********
si ver.	49,687,535	50,961,405	1,273,870	*******
tifi.'t.'s	313,140	22,223,350	21,910,210	*******
tific'tes U. S. N'ts Na. b'nk	61 397,180 251,419,341	75,800,831 255,6:4,138	14,403,651	\$15,765,20
notes	330,104,018	315,476,957		14,527,061
cur'ncy	6 623,253	6 430.696		92,497
Total.	\$1,051,248 -86 19,115 035	81,070,364,021		

A volume of circulation, or of money available for circulation, equal to something over \$1,700,000,000, would seem to be adequate to the requirements of trade, especially as about one fourth of that amount, or \$430. 000,000, is in the hands of the United States Treasurer, now covered by certifi-Only about 20 per cent. of the silver dollars already coined are in actual circulation. Of the \$1,300,000,000 in the banks, and counted as in circulation, \$400, 000,000 is in gold coin, \$55,000,000 in gold certificates, \$309,000,000 in legal-tender notes, and \$347,000,000 in national bank notes, or a little over \$1,100,000,000 in all. There has been, outside the Treasury and the national banks, an increase of \$7,000,000 in gold coin, \$5,000,000 in silver dollars, \$22,-000,000 in gold certificates and \$14,000,000 in silver certificates, and a decrease in United States notes of \$16,000,000 and in bank notes of \$15,000,000, making, with an increase of silver fractional coin, a net increase of \$19,-000,000 for the year. This steady increase of silver coinage cannot go on without entailing grave and far-reaching consequences. It is the imperative duty of Congress to stop forthwith the further coinage of silver dollars. The danger to which their continued accumulation gives rise is so evident that none need to be convinced of it except the silver-mine owners and the demagogues who are working in their interest.

We are promised a new Atlantic cable, to able offer refused." This condition of affairs be laid in the coming year, and to be excluwill cure itself in the course of time by the sively an American enterprise independent compulsory retirement from business of the of all existing lines. The cost of messages,

> The United States are progressing remarkably well in the matter of capturing prizes at foreign exhibitions. The latest acquisitions are 147 medals, 19 diplomas and to money prizes awarded to the United States at the London Fisheries Exhibition. The United States Fish Commission also secured 18 gold and 4 silver medals, besides diplomas.

In our issue of September 27 we published an illustrated article on "Coal and Coke for Iron Melting," by Mr. Thomas D. West. Having through inadvertence neglected to credit the same to the journal for which it was prepared, we take pleasure in saying that it originally appeared in the was prepared, we take pleasure in saying that it originally appeared in the American Machinist, and that credit should have been given at the time of publication. The article is one of a series on the general subject of foundry practice which Mr. West is contributing to that journal.

The line of the New York, West Shore and Buffalo Railway crosses the Oswego Canal at Syracuse at a point where peculiar local conditions would not admit the use of a pivot bridge. To overcome these difficulties a lifting bridge was designed, and to freely allow boats to pass it is lifted to a hight cious business men with reference to that amply sufficient to accommodate travel. No part of his message which will treat of the delay is occasioned, as the operation of lift-

canal. The extreme length of the truss is 94 feet, the extreme hight 23 feet, and the York, West Shore and Buffalo Railway. The machinery was constructed by C. H. Delamater & Co., of this city, after designs by their engineer, H. B. Roelker.

SCIENTIFIC AND TECHNICAL.

The Age of Trees.

The cypress, remarks the Lumberman's Gazette, affords an instance where the approximate certainty of its introduction into England enables us to form some conclusions with regard to its available age. The fact of its being first mentioned in Turner's "Names of Herbs," published in 1548, makes it probable that it was not introduced into England before the beginning of that century. But at all events the cypress at Fulham, which in 1793 was 2 feet 5 inches at 3 feet from the ground, cannot have been planted there before 1674, the year that Compton, the great introducer of foreign trees into England in the convention of the second of the convention of the second of the trees into England in the seventeenth century, became Bishop of London. That gives a growth of about 2 feet in the first century; but sometimes it attains a higher rate, as in the case of the cypress planted by Michael Angelo at Chartreux, which was 13 feet round in 1817, giving the average rate of over 4 feet in the first three centuries. Now, the cypress at Somma, between Lake Mag-giore and Milan, for whose sake Napoleon bent the road out of the straight line, is not more than 23 feet in girth, so that the tradi tion which makes its planting coeval with Christianity would seem doubtful; though, if we take 3 feet as the first century's growth, and take the third as the average, it may evidently have been standing in the time of Cæsar. The Lebanon cedar first planted at Lambeth in 1683 was only 7 feet 9 inches (girth measurements alone need be given) 110 years later. Dr. Uvedale's cedar, planted at Enfield not earlier than 1670, was 15 feet 8 inches when measured in 1835—i. e., 165 years after. And the large cedar at Uxbridge, which was blown down in 1790, v 118 years old when Gilpin measured it 1776, and found it to be 15 feet 6 inches. We should therefore be justified in assuming 12 feet as the possible first century's growth of a cedar even in England; whence we may test the probability of the oldest cedars now on Mount Lebanon having been growing there in the days of King Solomon. In the year 1696 the traveler Mandrell measured one of the largest of them and found it to be 12 yards 6 inches. Four feet a century being the average rate, the cedar measured by Mandrell would have required only nine centuries to have attained its dimensions of 33 feet, so that it need have been no older than the time of Charlemagne, and, allowing for a more rapid growth on the site where it is indigenous, may probably have been considerably younger.

Motion of Glaciers.

It has been known for some time that there are long periods of time during which the Swiss glaciers advance down or recede up their beds. Thus, in 1741 they were touching ice. They advanced all last century, so far as is known, and up to 1817, then went back until 1840, advanced till 1859, and have since beer receding till the present year, when many, including the Mer de Glace and the Rosenlaur glacier, have begun to advance. Observations were made during the past summer on the Glacier des Roissons at Chamounix, and the important Boissons, at Chamounix, and the important onclusion has been arrived at that the rate conclusion has been arrived at that the rate of motion of the same point on a glacier changes greatly from day to day. It was shown that while during the day the hourly rate or motion of one point observed was only .6 cm., during the next night it advanced at the rate of 5.5 cm. per hour. The rate of other points examined varied, but not so greatly. The change occurring at the foot of the clacier when it comes into the foot of the glacier when it comes into the valley was also no iced. The downward were in action. Torrents of sulphurous mud valley was also noticed. The downward motion of this point is determined by the fact that the parts above advance more quickly than the ice at the foot melts away. It was found that on one side of the glacier, where it rested against a bowlder, there was no apparent change in the outline of the ice or in the position of the bowlder during the day, while at the other side the end had moved in the same time 4 or 5 feet.

Atmospheric Electricity.

Some time since we published a brief ac count relative to a series of experiments on the above subject made by Dr. L. J. Blake, and in which it was stated that no convec-tion of electricity takes place by the rising vapor from a charged liquid surface. Fur-ther particulars which are now at hand show that Dr. Blake gave to the liquid a potential due to from 400 to 500 Daniel's cells. plate placed in the track of the vapors was. in the different experiments, either colder than the vapor or of the same temperature. By connecting the liquid with the electrometer, he found a small negative charge, increasing during the 15 minutes which each experiment lasted, but not sufficiently to justify the statement that electricity is generated by evaporation. In all the work the lamp was removed before connecting with the electrometer, and the whole apparatus was within a metallic covering connected with the earth. Distilled water, sea water from the North Sea, alcohol, sulphuric acid, mercury and solutions of a number of differ ent salts were tried.

An Interesting Phenomenon.

aqueous vapor in the atmosphere on the character of the sun's light. He states that of feet, the extreme hight 23 feet, and the extreme width 30 feet and 4 inches. The bridge is built entirely of iron, and weighs, with the machinery, 146 tons; the counterweights weigh 138 tons. The hight of lift from the bridge seat is 10½ feet. The bridge was designed by Albert Lucius, Engineer of Bridges, New York, West Shore and Buffalo Railway, and was built by the Hilton Bridge Company, of Albany, N. Y., the erection being supervised by H. L. Forte, C. E., New York, West Shore and Buffalo to the spectrum by aqueous vapor would be seen as well as the absorption at the blue, which is so common with us. Seeing the sun a vivid green through the steam of the little paddle-boat on Winder-mere first led me to inquire into the possimere first led me to inquire into the possibility of aqueous vapor following the same law as that which I think we may now following the same accept in the cases of the vapors of metals. As in these experiments with vapors, absorption of the red end alone was seen, as well as absorption at the blue end alone, the assumption that these two absorptions existed in aqueous vapor at once accounted for the green sun."

The Determination of Sulphur in Samples of Coal Gas

According to a paper recently published in the Zeitschrift für Analystische Chemie by Th. Poleck, the following modifications of the processes usually adopted for these deter-minations are accurate and satisfactory. He describes an apparatus which is readily fitted up, acts continuously, hardly requires constant attention, and admits of large quantities of gas being burned. In other respects the process agrees in principle with those in general use, in that the gas is completely burned in air, whereby the sulphur is perfectly converted into sulphurous acid, which is oxidized with bromized caustic soda to sulphuric acid, and then determined as sulphate of baryta. A Bunsen burner is placed in connection with the gas meter, and is also put under a broader tube opening down-ward, so that the Bunsen burner passes up into about 2 cm., and the flame must burn non-luminously, and must not be too high. By means of an aspirator placed in comm nication with a water pump, the products of combustion are carried through three U tubes, of which the first two are filled with bromized caustic soda, and the last with caustic soda which is not bromized. At the end of the experiment the amount of gas burned and examined is read off the meter. and the sulphur determined in the form of sulphate of baryta. By this process the whole of the sulphur present in the crude gas, as well as in the purified material, can be readily determined.

The Java Earthquake and the Telephone.

It has been observed, says Engineering, that earthquakes and volcanic eruptions have a disturbing effect on telegraph lines, setting up powerful earth currents in them and rendering communication difficult. Recent advices from Mr. Weaver, the superintendent of the Oriental Telephone Company at Singapore, also announce the fact that during the recent earthquake in Java and eruptions of the volcano of Krakatoa, the telephone lines in Singapore were unwork able, owing to a deafening roar which drowned the voice. Only shouting could be heard on the lines because of the noise, which resembled that of a distant waterfall. On one line, in which a small subaqueous cable about a mile in length from Singapore to Ishore formed part of the circuit, the roar was mingled with occasional reports like that of a pistol. The volcano of Krakalike that of a pistol. The volcano of Kraka-toa is situated on the island of that name in the Straits of Sunda, between the southern end of Sumatra and the northern end of Java. It is about 500 miles south of Singaadvancing, but it was reported that in 1700 pore, with a corner of Sumatra intervening. it was possible to walk from Chamounix to The noises in question were heard during Courneyer over the Col de Geant without the eruption on August 27 last, but can hardly be considered as due to acoust cal effects, notwithstanding the violence of the eruption. The cause is perhaps rather to be sought in the disturbance of the terrestrial magnetic field or in the electric state of the atmosphere by the terrific explosion. The first signs of the eruption were noticed on August 25, when shocks or earthquakes were felt as far as Batavia, and a fine ash began to fall, intermingled with red-hot stones. The waters of the Straits then began to boil, Torrents of sulphurous mud mendous explosions were heard, followed by showers of stone and ashes. The clouds were heavily charged with electricity and lightnings played vividly. Next day the shocks and eruptions increased, and were accompanied by tidal waves. The Island of Krakatoa entirely disappeared, and the de-struction was frightful, as the newspaper reports have already testified.

> During the past year the Pennsylvania Railroad bave erected in Philadelphia a building for the use of men employed on freight trains when they are off duty or away from home. This neat and commodious refuge cost about \$10,000, and a short experies has proved that it was a good investment It contains bathrooms, with hot and cold water, a smoking-room where checkers and dominos are provided, but other games are forbidden, a reading-room well with papers and magazines, and a library which already contains numerous standard works of fiction, biography and religion. On the third floor is a large room provided with iron cots, on which the men can sleep for an hour or more when they have sufficient time at their disposal. The com-pany make no charge for the use of the building and its privileges. There is a similar institution at Harrisburgh and another at

The Rhode Island Locomotive Company, of Providence, have entered an action for the recovery of four locomotives, costing \$40,-

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TOOPE'S PATENT ASBESTOS-LINED REMOV ABLE COV-ERING, made of Felt and As-bestos For use on STEAM



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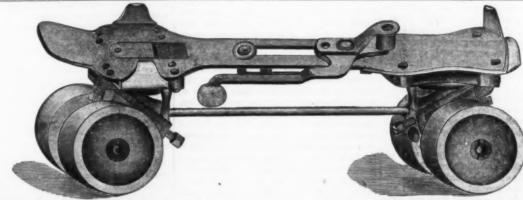
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HORSE NAILS.

WILL NOT SPLIT,

And will Hold a Shoe Better than any Nail Made.



We now offer our New Patent Self-Adjusting Lever Rink Roller Skate, with foot plate and working mechanism made of crucible we now oner our New Fatent Seil-Adjusting Lever Kink Roller Skate, with 105t plate and working mechanism made of crucible steel, blued or nickeled Malleable Iron Trucks, Adjustable Rubber Springs, Steel Axles and Boxwood Wheel: This is the best Guideable Rink Skate ever offered to the public. We also manufacture the Standard Scientific and New Rink Roller Skates, with word tops, also New York Roller Skates. Our Illustrated Catalogue for 1883, showing the most complete line of Roller and Ice Skates ever offered to the trade by any manufacturer, will be mailed on application.

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IT REQUIRES NO OIL

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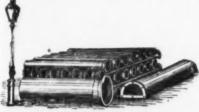
Made of Wrought Iron (except the Wheel, which has a Steel Axle) in a thorough manner, of sufficient strength to sustain the heaviest door.

The heaviest door can be moved by a child, and will always operate as well as when first applied.

The Rail is made of Wrought Iron, in two-feet sections.

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AWARDED THE GOLD MEDAL AT THE INTERNATIONAL EXHIBITION. London, 1883.

INDUSTRIAL ITEMS.

CONNECTICUT.

E. H. Jacobs & Co., belt manufacturers, have removed their extensive manufactory from Pawtucket, R. I., to Danielsonville, where they are now prepared, better than ever before, to meet the demands of the public for their goods. Besides belt manufacturing, Jacobs & Co. have unusual facilities for furnishing promptly supplies used in cotton, wooden and silk mills, and facilities for furnishing promptly supplies used in cotton, woolen and silk mills, and also manufacture a patented hose carriage or reel adapted to the use of mills and fire departments, and for the sale of which they we agents in different parts of the country Their fire-engine hose stands a pressure of 600 pounds to the square inch. This house is now able to compete with the largest houses in the United States carrying the same line of goods—mill supplies of all kinds. The most experienced workmen are employed in the several departments of the stablishment, and the mechanical genius of he firm itself is well known. The Messrs. the firm itself is well known. The Messrs. Jacobs have recently filled large and important orders, especially for engine belts, owing to the extensive drought that has prevailed more or less in New England the past season. Their establishment is an important industrial addition to Danielsonville.—Boston Commercial Bulletin.

R. H. Brown & Co., of New Haven, manufacturers of chucks and other special machinery, are putting in a Westinghous automatic engine of 100 horse-power.

The New England Glass Burial Case Company, in Thompsonville, have just received an order for several thousand caskets from Cuba.

MASSACHUSETTS.

The forge of the United States Arsenal, at Watertown, is to be opened for the first time in 10 years, to alter 25 gun-carriages.

The Byron Car Couple Company, Lowell, has been organized, with a capital stock of \$400,000, and a large portion of the stock is already subscribed.

At Uxbridge, the Davenport Gun Company have taken a two years' lease of the Capron grist mill and the adjoining card factory. Mr. Davenport, the inventor, is to be superintendent.

The firm of Estabrook, Wires & Co. of Milford, has dissolved, Mr. Wires retiring to devote his entire attention to the busiess management of the Clinching Screw Company, of Boston,

The capital stock of the Emerson Safety Guard Company, at Lawrence, for the manufacture of the safety guard for car trucks invented and patented by a gentleman of that city, is \$50,000.

The Fall River Iron Works Company are building 10 nail machines, which will be operated in the old machine shop.

PENNSYLVANIA.

Messrs. Riehlé Brothers have just com Messrs. Riche Brothers have just completed a machine for countersinking the marble tops of washstands, and that can be used in many ways for finishing up ornamental marble-work. It might be called a marble-milling machine, and saves a great deal of handwork. The scale and testingmachine department of the Philadelphia Scale and Testing Machine Works is fulled. Scale and Testing Machine Works is full of orders. The Richlé cement tester has been adopted as the "standard" by the Board of by the Board of Public Works of New York City.

The Iron City Forging Company, Limited, a new company of Pittsburgh, have built works at Sumner Station. They have one steam hammer, and all the necessary equipment for handling and turning out forgings.

Pennsylvania Furnace, at Graysville, Hunt-Pennsylvania Furnace, at Graysville, Huntingdon County, recently under lease to Carnegie Bros. & Co., has been leased from the owners by a Pittsburgh firm, who, it is stated, will blow it in on charcoal. The furnace has been idle for some years.

The Scranton Steel Company are about completing an order for the Philadelphia and completing an order for the randelpina and Reading Railroad for steel rails measuring 60 feet in length, when ready to be laid, and weighing 67 pounds per yard. These works are now averaging 50 heats per turn of 12 hours in their converting works, and a few days ago made 53 heats inside of 12 hours. This is helicated to be the largest numbers of This is believed to be the largest number of heats ever made in Scranton in that length of time with two converters.

The Philadelphia and Reading Railroad are introducing the electric light in their machine shops in Reading on quite an extensive scale. An order for 10 new engines has been received at the shops, and this, with the usual large amount of repairing that is done, will probably keep the works busy until spring. Excavation for the new large brick shop on South Seventh street has begun

Clem & Morse, Philadelphia, have recently received an order for one of their Albro-Hindley screw elevators from Codd & Ry-lands, Barnsley, England. Mr. Rylands, of the above firm, while on a recent visit to this country, saw the practical workings of this elevator in various places, and was so impressed with its superiority that he ordered one for their works at Barnsley.

The Manhattan Hardware Company, Reading, manufacturers of patent hardware spe-cialties, in order to keep up with the growing demand for their goods, intend building an extension to their works measuring 50 x 200 feet. They are now engaged on some very jarge orders for foreign account.

The Kalamein Alloy Company, Limited, is a new corporation of Pittsburgh. Kalamein alloy is a compound invented by Mr. Henry Roberts, and is to be applied, by a process of Kalamein of Steel which Mr. Roberts is also the inventor, to iron and other metals, to preserve them. The total amount of the capital stock of the company is \$500,000, of which \$460,000 has been paid in, and the stockholders are the following gentlemen, each of whom owns over four miles of large mains in operation.

the amount set opposite his name: Henry W. Shepard, \$230,000; H. W. Oliver, Jr., \$40,000; D. B. Oliver, \$40,000; J. B. Oliver, \$40,000; George T. Oliver, \$40,000; Henry Roterts, \$40,000 and Cadwallader Evans,

OHIO.

The Youngstown Steel Casting Company state that there is no truth in the report that they intend to go out of the steel business and sell their works. They have, however, found that they cannot manufacture ingots profitably, and are considering the question of adopting a new process for steel-making.

The Columbus Rolling Mill has been sold to a Milwankee syndicate, headed by Gen. Irwin McDowell, for \$175,000. The purchasers are the owners of a patent by which they convert ordinary pig iron into muck bar without the necessity of putting it through the expensive process of puddling.

The Cleveland Milling Company have ordered a 20 x 60 Reynolds-Corliss engine.

The engines in the new Kelly Nail Mill, at Ironton, were all tested last week and gave Ironton, were all tested last week and gave satisfactory results. The grindstones are being put in, and the nailers and other worknen are arriving in Ironton.

The tinning department of the Youngs-town Malleable Iron Works caught fire on the afternoon of the 20th ult., from some oil, and damaged the room to the extent of about \$200. Prompt action on the part of the ompany prevented a large fire.

The Russia Mill, at Niles, operated by the Mahoning Valley Iron Company, of Youngstown, is held by them under a lease subject to termination at 30 days' notice. The property being in the hands of assignees, of course necessitated this arrangement.

The assignment last week of John N. Glidden, of Cleveland, secretary of the Republic Iron Company, created a considerable sensation in the city named. The company on October 23 filed a claim against him for \$111,000, which indebtedness, it is for \$111,000, which indebtedness, it is alleged, arises from appropriating to his personal use notes and money bolonging to the company, charging it up to his account.

Mr. Glidden, on the other hand, insists that his indebtedness to the company was incurred in a legal way. He was given the manin a legal way. He was given the man-agement of the company's sales, and man-aged them according to his judgment. There was an open ledger account, and the books were always open for inspection. He admits he owes \$900,000, but exhibited a statement showing assets on iron, mining stock, metal, vessel property and real estate, appraised at a value of \$1,020,000. Fully three-quarters of his indebtedness is due to banks for money borrowed on collateral. He says that the unsecured debts will not exceed \$75,000.

ILLINOIS.

The North Chicago Rolling Mill Company's The North Chicago Rolling Mill Company's mill, at South Chicago, was the scene of a terrible explosion about 8 o'clock on the evening of the 21st ult., which fortunately resulted in no loss of life. It being Sunday night, no work was being done in that locality, otherwise the loss of life would certainly have been great. The tunnel leading from the gree house to the resident horizont. from the gas-house to the rail mill, built of brick, exploded, sending masses of brick and mortar in all directions. The tunnel was 8 feet in diameter, and was destroyed, as well as the ceiling overhead. As soon as the débris was cleared away 50 masons were at once set to work, who completed the repairs Monday night.—Chicago Industrial

The Campbell Tool Company, of Chicago, have recently been appointed the general Western agents for the sale of the products of the Bolton Tool Company, of Canton, Ohio, consisting of fine tools and polished crucible machinery steel.

The new works of the Globe Foundry, Chicago, turned out five tons of castings on the 23d ult.

ALABAMA.

Both stacks of the Eureka Iron Company, at Oxmoor, are idle, undergoing repairs.
All other furnaces of the Birmingham district are in full blast. The birmingham Rolling Mill is still closed, with no immediate prospect of resuming. The other iron-working establishments of the city are running

The Pratt Coal and Coke Company con template adding a blast-furnace plant to their works shortly.

The Bibb Branch Coal and Coke Company have reached a very fine vein of bituminous coal at their works, about four miles from Birmingham, and will soon attain a large output. The company think of erecting a plant of 200 coke ovens, as the furnaces in that region are daily finding it more difficult to obtain coke, and a large home demand can be depended upon.

Telegraph dispatches announce that the Vulcan Steel Works management has given out that on November 1 the wages of all employees will be reduced to per cent. The workmen, it is stated, are divided in opinion in the matter, some declaring they will not submit to the reduction, while others express willingness to continue work at the reduction during the winter rather than have the mills shut down now.

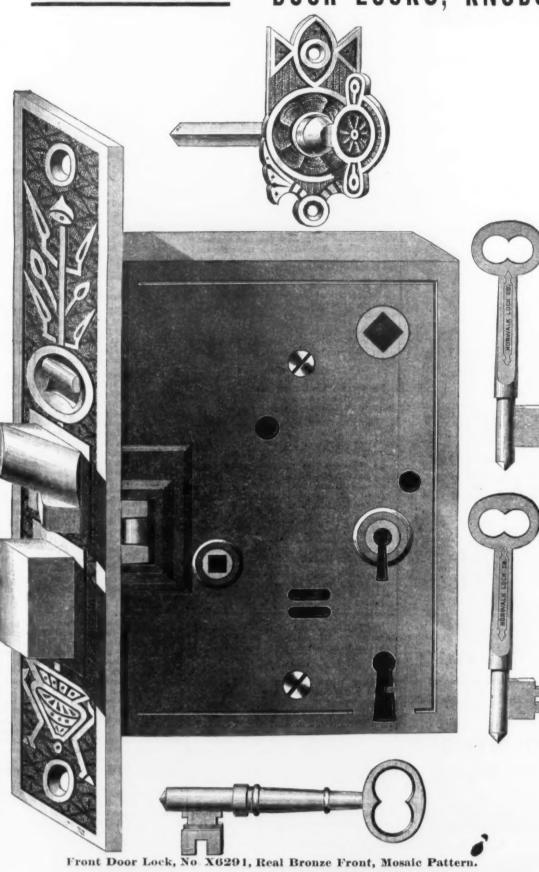
The St. Louis Malleable Iron Company are running day and night trying to catch up with their orders. The St. Louis Iron and Machine Works were damaged by fire last set. They are now engaged on some very saturday night to the extent of \$5000, which loss is fully covered by insurance. The Helmbacher Forge and Rolling Mili Company County, fare nearly completed, and it will soon blow in.

The Kalamein Alloy Company, Limited, is a rew corporation of Pittsburgh. Kalamein

> German exports to the United States are rapidly decreasing in number and value

The New York Steam Company now have

NORWALK LOCK COMPANY, SOUTH NORWALK, CONV.
MANUFACTURERS OF DOOR LOCKS, KNOBS AND BUILDERS' HARDWARE.





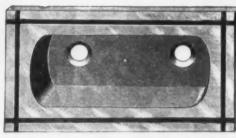
Mosaic Pattern.



Real Bronze Rose and Escutcheon Combined, No. 6954%. Mosaic Pattern. For Lock No. X6291.



Real Bronze Door Knob, No. 6604.



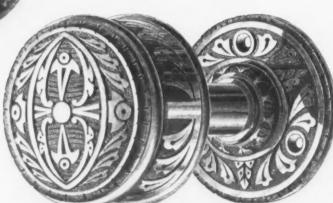
Real Bronze Flush Sash Lift, No. 7111/2. Line Pattern.



Sash Lock, No. 4500. Frost's Patent.



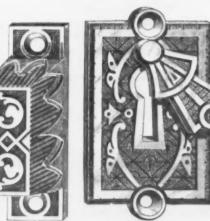
Real Bronze Bell Pull, No. 518.



Real Bronze Door Knob, No. 6713.



Real Bronze Cupboard Turn, No. 3525.



Real Bronze Drop Escutcheon, No. 6896. Mosaic Pattern.

taking upper The v move under for his bottom ter, a squarch and with a the period these capac pressure, le on the a new In f

gener

(Continued from Page 1.)

of doors through arches in the end wall. Slag and sloppings from the vessels fall upon a nearly flat roof which covers the standing, by draulice cylinders, &c., in rear of the vessels. Each vessel has a cast-iron trunnion section on en eigee, inside of which is hung the shell, or vessel proper, which can thus be removed on the plan proposed by Holley. The word of the plan proposed by Holley. The word of the plan proposed by Holley. The word of the sessels are rotated by horizontal hydraulic cylinders a cinches in diameter, with racks and pinions of cast iron. Steel would perhaps have been stronger, but the expenses have been stronger, but the expenses have been stronger, but the expense having one side of, the piston, owing to a leaky pipe, can be completely guarded against by from the blast furnace, the other from the

In front of the vessels are the two ladle cranes, so placed that both of them may serve the center vessel of the three, while the end vessels are reached by one crane the end vessels are reached by one crane in the position of the crane jibs due to specially provided. A newly-lined ladle is wear of top supports, elasticity of materials and slight derangements of any sort, and it drying-shed, where there are 12 hoods, with

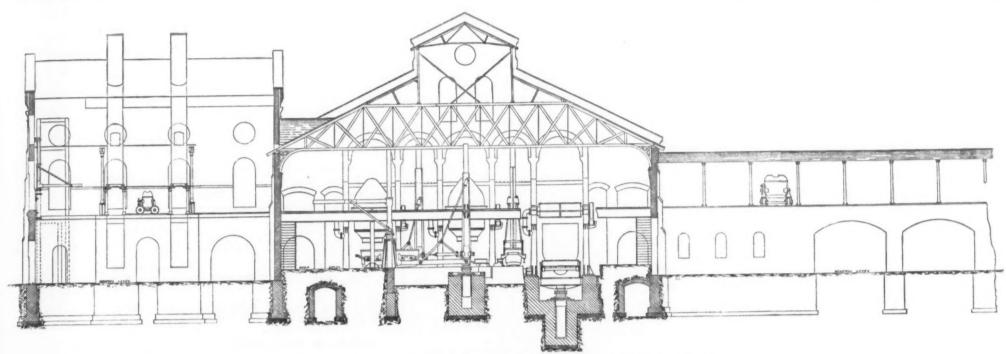


Fig. 2.—Cross-Section of Bessemer and Spiegel Cupola House Along Line E of Fig. 1.

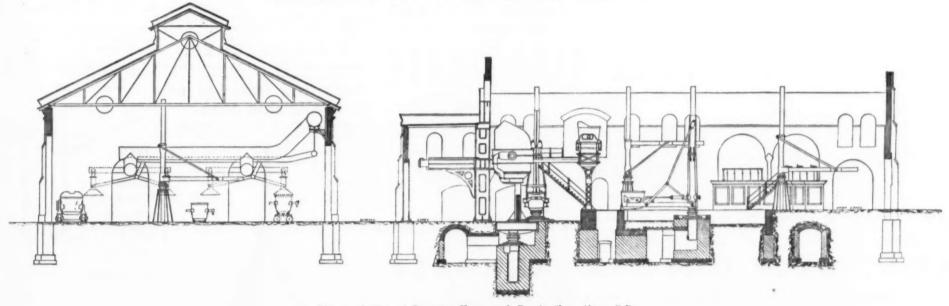
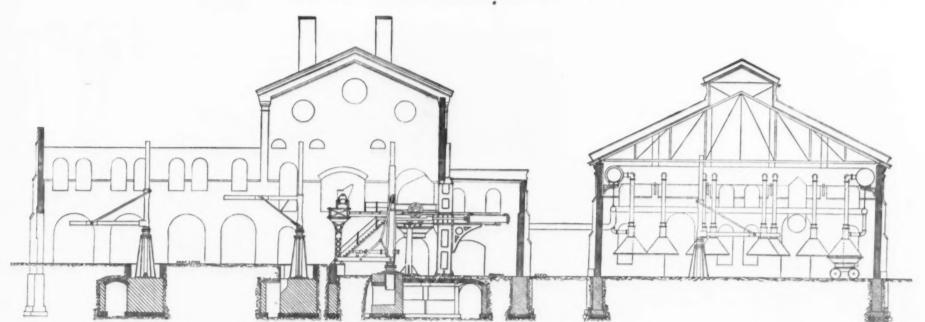


Fig. 3.-Section of Bessemer House and Repair Shop Along CD.



House and Repair Shop Along A B.

THE BESSEMER PLANT OF THE NORTH CHICAGO ROLLING MILL COMPANY, AT SOUTH CHICAGO,

taking the water into the cylinder on the upper side, instead of the lower, as is usual. The vessels turn through an arc of 270°, and more with great smoothness and steadness. Under each vessel is placed an hydraulic lift for handling the vessel whell and putting on bottoms, with a plunger 24 inches in diameter, a stroke of 6 feet and a platform 12 feet purposes, and a platform 12 feet per 100, to a level siding just outside drove with great smoothness and steadness. Under each vessel is placed an hydraulic lift for handling the vessel whell and putting on bottoms, with a plunger 24 inches in diameter, a stroke of 6 feet and a platform 12 feet square. Although a shell has never been handled in this way, yet from the experience with the apparatus, tentertain no doubt of the perfect practicability of the method, and platform 12 feet process shall have come into transportation of motion of receiving crane having settled in the apparatus, tentertain no doubt of the perfect practicability of the method, and platform 12 feet process shall have come into transportation of motion of receiving crane having settled into its position; capacity of 93,000 pounds, at 300 pounds pressure of 12 feet long, placed in line with the crane jibs.

In front of the vessels, and, in fact, all over the plant on the other manner of the perfect process shall have come in the same way from the experience when the transportation of meted in the jobs to see it adopted as soon as the basic on the jobs to see it adopted as soon as the basic of the perfect process shall have come in the same way from the process of the process of the process of the perfect process shall have come in the same way from the expecting crane and the first ladle, having been cleaned, is constituted under the first hadde, having been cleaned, is constituted to allow the first ladle, having been cleaned, is constituted under the feet long, and to the first hadde, having been cleaned, is construction began, and to the fact that the feet long, and the first ladle, having

A.G.COES PAT.DEC. 26.1871.

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JOHN WILSON'S BUTCHERS KNIVES BUTCHERS STEELS and

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In All Styles.

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med by John Wilson, of Sheffield, England, which consists of four peppercorns and liamond, under the mistaken belief that I had the right to do so.

NOW, This, is to Witness, that, in consideration of the forbearance of the presentatives of the said John Wilson to sue me for damages for the wrong presaid, I do hereby undertake and agree,

FIRST, to surrender and deliver to the Attorneys for the said John Wilson, all knives now on hand, and in my possession, or under my control, bearing the said imitation trade-mark, and

SECOND, I further undertake and agree to and with the said John Wilson, and his legal representatives, not to manufacture or sell, or cause to be manufactured or sold, at any time in the future, Knives or other Cutlery, bearing his trade-mark aforesaid or any imitation or simula-

WITNESS:—
E. M. REED."
(Attorney for Defendant.)

G. A. ROBINSON. (L.S. Imitation SHEARSTEEL Mark

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LIFTS THE WINDOW

(in locking) evenly to its place. SIMPLE AND STRONG.

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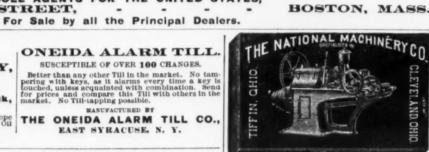
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and cracking the castings of the bottom and away much of the danger from slopping of are unknown. An old bottom, when removed from the vessel, is placed over a pit, tuyere stumps and loose stuff knocked out, and is side-tracked for making up. With ordinary life of bottoms, all making up is done on the day shift.

The center of the repair shops is taken up by tracks for transportation of bottoms, slag, &c., to and from the vessels, and by the (proposed) tracks for moving the vessel shells when that shall be attempted. An arched ppening 40 feet wide in the side wall is left accommodation of a turn-table half in and half out of the building, and from the y vessels tracks of 10-feet gauge converge to the turn-table, which will distribute the vesshells to positions convenient for repair and renewal of linings. None of this work has yet been put in, but the provision for it very much increased the dimensions of the repair shop, which, for a plant in which reoval of vessel shells is not intended, can be better arranged. The gas flue for conveying gas to bottom and ladle hoods is hung on brackets from the wall, as is also the blast pipe supplying air to the hoods, which leads Sturtevant fans in the spiegel alding. There is a gas-fired oven pola building. for drying clay, &c, and a producer house containing 8 gas producers of the old Siemens type completes the range of buildings connected with the repair shop.

The repair-shop idea—the separation, so far as possible, of repair and renewal of refractory materials from the actual operations of the plant—was a favorite idea of Mr. Holley's, and the results of its application so far have amply justified his expectations. Gas heating of bottoms and ladles—more completely carried out, perhaps, in this plant than in any other—has been very satisfactory. The cost per ton of ingots of fuel for this purpose will not exceed that of the coke, or equivalent fuel, burned in ovens in the usual way, while the greater cleanliness and convenience of gas burned in hoods, as de-

cribed, leaves nothing to be desired.

The machinery of the plant throughout is solid and strong. The blowing engines are, believe, the largest in this country; they are certainly of ample capacity, and work smoothly and well, and every effort was made in the design of the hydraulic machinery to secure rapidity and certainty of action, as well as strength, durability and accessibility for repairs. All pipes to and from hydraulic cylinders are large, and as short hydraulic cylinders are large, and as shown and straight as possible, and every pipe about the place is laid in a sewer, and can be followed throughout its whole length. Particular attention was given to the strength of ladle and ingot cranes, and to their foundations, and the ingot cranes, it is believed, are the largest and strongest yet built, while the ladle cranes have performed their exceedingly heavy work in a very satisfactory manner.

The vessels and bottoms were designed for working heavy charges of direct metal, and, having in view the possible occurrence of "long blows"—those curious phenomena by which the blast-furnace people remind us how perfect their control of the blast furnace -care was taken to provide plenty of wind, ") far as large blast-pipes and tuyere area will do it. There are 18 tuyeres in the bot-tom, the blast-pipe on the vessel is 12 inches in diameter, and the blast-main is a 15-inch pipe. These sizes seem to be sufficient, for, trial; it was found that with a pressure of pounds at the regulating valve there was pounds in the tuyere-box during the first minutes of the blow; 22 pounds at the valve gave 20 in the tuvere-box during the

The longest blow on record at South Chicago lasted 45 minutes, but 10 tons of metal the rate of 12 minutes to a blo hour can be made regularly, for with three vessels blowing can go on continually, and by the use of two ladles and the transfer ready for a charge when finished.

As this rate of working will keep the vessels constantly employed, an easy arithmetical process brings us to that for which have sought-a possible limit to the product of a Bessemer pit, viz., the respectable figure of 600 tons in 12 hours.

The general appearance of the plant is strik ing and unlike that of any other in this conn try-nor, indeed, is there a plant which much embles it anywhere. Placing the vessels in the end of the converting building, and bringing metal and spiegel to them in front and from opposite sides, does away with the gloomy cave which, in the old style of plant, exists behind the vessels, and in which some of the hardest and hottest work has to be The elevated railway crossing the beneath it supports, partly, the platform about the vessels and allows this platform to be, not a cramped and narrow staging just large enough to carry runners, but a roomy floor extending all round and behind roomy floor extending all round and behind has the advantage over a silicon determina the vessels, affording ample space for all tion that it registers, so to speak, the effect manipulations and greatly increasing the comfort of the workmen. Short and straight runners reduce runner scrap to a minimum and get metal to the vessels with the least ton of silicon has been brought to great personal constant work, away from the vessels is a great improvement, and takes of the vessels of the reason to the management.

The product of ingots at South Chicago both admit that the machine gun cannot ton face field artillery at artiller

and cracking the castings of the bottom and the car; as is the case in ordinary oven metal to which pit men are exposed. It practice, and the heat may be adjusted to the requirements of each bottom, a gentle flame being put on at first and increased flame being put on at first and increased in it has turned over, depositing the metal, not in the rit exponent the metal. afterward as the bottom dries. This plan not in the pit among the men working will, I think, be found especially adapted to there, but upon the floor on the general basic bottoms. The dried bottom is pulled from under the hood by a locomotive and taken to the vessel, when car and bottom to to note, was not in the least injured. A few gether are raised by the hydraulic lift and minutes' work sufficed to break up the mess the bottom keyed on. The joint between and get it out of doors. This, by the way bottom and vessel is perfectly flat, and the joint stuff is subjected by the action of the hydraulic apparatus, and it arose from lift to a pressure of about 2000 pounds per the failure of a suction pipe bringing water square foot, which it is hardly necessary to to the pressure pumps. In the course of to the pressure pumps. In the course of say secures a good joint—indeed, leaky joints 12 months' working not a pipe has burst nor are unknown. An old bottom, when re- a joint given out—a somewhat remarkable record.

Removal of slag, so important in basic working, is provided for by tracks upon which cars may be run under the vessels and some distance in front. When filled with slag the cars may be pulled out to the rear through the repair shop. These cars are not yet in use, as the acid slag, though generally pretty liquid, is not in sufficient quantity to be a nuisance, and mostly goes in the ladle. Handling of ingots and molds is much facilitated by the arrangement of pit, cranes and tracks shown, and the important point of transportation of both waste and finished product seems pretty well provided for.

The possible need of cupolas for remelting the Sunday iron and using up scrap was recognized in the design, but no cupolas were put up. It would seem that, for a plant designed to work mixed cupola and direct metal, and having large furnace capacity, the cupolas might advantageously be pacity, the cupolas might advantageously be place placed near the furnaces, and be considered, in fact, adjuncts to them; but so much depends upon local conditions that a different arragement might be the best. the chief reliance is to be upon cupola metal, the cupola house should, of course, adjoin the converting house, but if the office of the cupola is merely to remelt Sunday iron and eke out deficient furnace capacity, cupolas near the furnaces seem to be the proper arrangement. One possibly good result seems likely to follow the location of the cupola at the furnace—the furnace manager will investigate its various zones, determine whether it has any of Bell's alphabetical determine

tendencies, and write a paper about it.
It is, I think, not altogether a fancy mine that this plant works more smoothly and with less friction than any with which I am acquainted. The | erfect regularity and ease with which all the operations are conducted—due to the special adaptation of means to ends—strikes the observer at once, and to one familiar with Bessemer work it is at once fascinating and satisfactory.

The South Chicago practice differs in some points from that at other works. In the use of direct metal it is not now singular, as one other plant is working direct with great success, but there are some details of direct practice which may be of interest; the other points are the remarkable ladle and bottom practice and the employment of steam for controlling the temperature of the metal. It is remarkable that the use of direct metal has been so long postponed in this country. The first Bessemer (or, rather, Kelley) blow at Wyandotte, in 1864, so well described by Captain Hunt in his "History of the Besse-Manufacture in America," was made with metal direct from the furnace, and the practice, though interrupted by experiments with reverberatory furnace and cupola, continued to be direct-metal work until the plant was abandoned. The singular silence of everybody connected with the plant at Wyandotte (broken only by Captain Hunt's paper above referred to) as to the working results there, leaves a blank which imagination can, perhaps, fill; and the most definite information I have been able to get is to the effect that they had "a good deal of a time" with direct metal. The Bethlehem Iron Company also experimented with direct metal, but the results seem to have been unfavorable, and their magnificent plant, de signed by Mr. Fritz with special reference to direct working, is now using cupola metal only.

European practice has meantime been rext 7 minutes, and during the drop of the flame the pressure fell to 20 pounds at the valve, with 17 pounds in the tuyere-box.

This sudden fall of pressure at the end of the are in the vessel when carbonic oxide ceases to be evolved, and it points to the necessity of ample engine-power for working the basic with its several minutes of overblow.

The longest blow on record of the several about the pressure of the several minutes of the several mi other side, and will yet bring it about here. With reasonably good ores, success in workwith 2 per cent. of silicon is commonly ing direct depends primarily upon intelligent blown in 10 to 12 minutes, and one blow of and scientific furnace management, and in a poco pounds was finished in 3 minutes. At almost equal degree upon careful and constant watchfulness in the Bessemer works. These two factors react upon each other, blowing can go on continually, and the information that anything is wrong with the metal is not long in traveling from the as described, a ladle is always steel works to the furnace, and the furnace manager is compelled to keep a close watch upon his product, and take immediate steps to remedy the difficulty. With cupola working, the always magnanimous Bessemer man will attribute the trouble to some defect in his own work, and the furnaceman will maintain that calm serenity of mind, that peace which passeth all understanding, which characterizes him under ordinary circumtances, and which it is the chief mission of

direct working to dispel. But with the best of furnace work some neans of knowing what sort of metal is about o be blown must, of course, be at the disposal of the Bessemer works, and at South Chicago the plan was adopted of taking a test from the metal as it ran to the vessel, which was cast in a chill and cooled at once in water. The fracture of this "chill" enables the lower to judge very accurately of the probadditions to be made. After a little practic mistakes were rarely made, and the of other elements besides silicon, and gives the operator a tangible record of the metal

sary information in a better form, and while knowledge of the silicon percentage is of great importance to the furnaceman, yet the Bessemer works is better served with a test sample. It is surprising what great yeariety of metal the Bessemer process can deal with under favorable circumstances. White iron with ¾ of I per cent. of silicon has been successfully converted, and so has It became evident very soon after work labor.

sel blast-pipes, with the object of cooling the metal by means of steam, but had no opportunity to get the apparatus into working shape. To Mr. W. R. Walker is due the credit of having made the use of steam in the Bessemer process a success on a large scale, for all previous applications had been hardly more than experimental. Though the cool ng effect upon molten iron of steam used b self had been known before the time of Bessemer's early experiments, yet I believe there is no record of the successful use of steam and air for the express purpose of cooling the bath in the Bessemer vessel steam and air for the express purpose of cooling the bath in the Bessemer vessel earlier than the certain experiments of Captain Jones, of the Edgar Thomson Works. No one was more anxious than he for the success of the new plant, and my only respectively into the blast-pipe leading to each tapped into the blast-pipe leading to each vessel where it leaves the regulating valve, drip cocks for drawing off water of condensation, and a steam cause with the necessary the means by which those objects have ation, and a steam gauge, with the necessary globe valves for regulation. As soon as the metal in blowing shows signs of undue heat. steam is turned on (care being taken to drain any water from the steam pipes) and kept on until, in the judgment of the blower, the proper cooling effect is produced. An enornous quantity of steam is sometimes re-uired, the full opening of a 2-inch pipe at o pounds presssure being occasionally given. Nothing can be neater or more effectual than this way of cooling metal; there is no hand-ling of scrap, and the whole matter is under the complete control of the blower, who, by opening a valve, can regulate the tempera-ture of the metal with the greatest nicety. A capital advantage of steam is that with its aid metal high in silicon can be converted without difficulty, so that a furnace may make such pig, in which sulphur may be kept low, vithout complaint from the Bessemer works. It may be of interest to note that no removal of sulphur or phosphorus is effected by the use of steam. The mode of action of steam in cooling the metal is, perhaps, open to question, but it is probable that the steam, reaching the tuyers-box, has wholly con densed into watery vapor which is raised to steam in passing through the bath, thus aborbing a large amount of heat. There may be a further absorption by decomposition of water, but that this will have much influence eems unlikely from the short time available or the reactions, and from the fact that sulphur is not appreciably removed. That the steam is condensed before reach-ing the metal is evident from the fact that the tuyere-box and blast-pipe are quite cold, whereas without steam these parts are usually hot enough to burn the hand, and indeed, water runs freely from any leak; joint about the bottom. That there is any danger of explosion with reasonable care is amply disproved by the experience at South Chicago, though it must be confessed it has rather a risky look to see a heat blowing in a vessel and water running in streams out of the tuyere-box. No danger is to be apprehended, however, so long as the blast of air is simply drenched with watery vapor; it is the intrusion of liquid water beneath the pean practice has meantime been moving toward the abandonment of ing, and very few new plants now plate the use of cupolas. Perhaps will explain why we have clung to the lower side of the tuyere-box, so that any water accumulated there may be drained off between blows. Washing of the clay packwein blows. Washing of the clay packwein blows. vented by mixing some hydraulic cement with the clay, which then sets and perfectly resists the action of the steam. For any Bessemer works liable to occasional hot neats the use of steam is important, for a direct-metal plant it may almost be said to be indispensable. By using steam the consumption of scrap may be confined to what the Bessemer works itself produces, and the unmerchantable scrap from the blooming and rail mills, leaving the rail ends to be sold or rolled into wire rods, &c., for which there is always a market. The saving of the time and labor employed in getting scrap to the vessels and handling it there is a not inconiderable item, and, on the whole, I do not know any point of practice which better commends itself for conveniences and economy than the use of steam.

The refractory material practice in the West generally is very good. Vessel linings are "balled up" with finely ground patch-ing stuff and last for months, and bottoms Vessel linings are made in much the same way. At South Chicago a 10-ton vessel has been lined up in this way in 7 hours, and some remarkable results have been got with bottoms. A bottom has made as many as 29 heats, yielding 238 tons of ingots; and the average life of bottoms for a whole month has been 1852 abandoned. heats, yielding 159 tons of ingots. In a paper read before the Institute at the Clevefigure of 11 heats of 5 tons each; the two figures, 55 tons and 159, represent pretty

information in a better form, and account of itself. As a rule, the product of infantry are closing, the machine guns may while from with 34 of 1 per cent. of sincon tained or even exceeded. One hindrance to has been successfully converted, and so has iron with 4 per cent, with all the intermediate grades, but the best metal for direct working is found to be that with from 1 to no less than 436 ingots had to be handled, working is found to be that with from I to I'/2 per cent. silicon, pretty gray, and with not more than I per cent. manganese. Ten tons of such metal can be blown in 10 to 12 minutes, and, phosphorus being low, will make good steel. The higher limit of silicon is perhaps the safest, as affording reasonable security against sulphur, and there is no difficulty in dealing with 2½ or even 3 per cent. of silicon—quantities which insure that sulphur in hurtful amount will not be present.

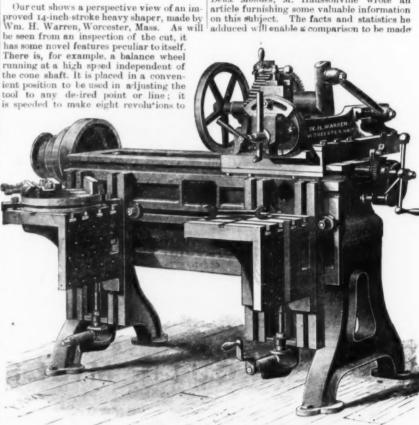
It became evident very soon after work loss in one less than 436 ingots had to be handled, with an equal number of molds. The cranes and tracks are, however, so arranged that this large amount of handling is done without interfering with any other operations. But some mechanical device is very much needed for handling ingots and molds; the work about the pit is now the most severe, and in the aggregate most expensive, labor about a Bessemer works, and it would seem that there is room for some device which shall save both time and labor.

began at South Chicago that there would be difficulty in keeping down the heat of the metal by means of scrap alone, and I therefore put in steam connections to each of the process with the steam connections to each of the ments made with that end in view. If the process is to exceed the steam of the process with the proc basic is to succeed in this country, it must be carried on in works designed with some carried on in works designed eference to the process and provided with the necessary facilities. South Chicago being the only works in the country which has been built with any such idea, the result of such a trial will be looked for with much interest.

It need hardly be said that in the design of this plant I had the benefit of Mr. Holley's counsel and experience, and I wish to record here my deep sense of obligation to him, which his untimely death prevented me

aimed at in the design of this plant, and the means by which those objects have been accomplished. The conditions were somewhat novel and peculiar, and the result is a plant which, perhaps, might better have been allowed to speak for itself.

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Wa rea's Improved Shaper.

front of the machine are raised and lowered by the crank and bevel gears, and are proportioned to work quickly and easily. head traverses 42 inches. The bearin The bearings are head traverses 42 menes. The bearings are large and long. All gears are cut from the solid, and in every case are scraped fits. The cone has four changes of speed, driving a 16-tooth pinion which runs in a driving ear of 86 teeth, which gives more than the ordinary amount of power. attachment and vise are furnished with machine if so ordered.

which such wonders were expected, was as heavy as a field gun, and required six hor land meeting, in 1875, I stated, with some to draw it. Its range was practically the pride, that the average life of bottoms at same as that of infantry, and had its disadrularly creditable to the management.

The product of ingots at South Chicago both admit that the machine gun cannot

be brought from cover, in which they should be kept till then, and may then exercise great influence on the result

The Congo Valley.

The West Coast of Africa again comes to the front as an inviting field for commercial enterprise. Liberia, the African Republic enterprise. Liberia, the African Republic established under American auspices, real-izes only in a faint degree the magnificent possibilities with which its name was for-merly associated, and Sierra Leone, further down the coast, is an English trading station of only moderate pretensions and of no special promise. It remained for the American explorer, Stanley, to discover that the Congo River and its tributaries penetrate a region nparable to the far-famed Nile in its fer tility, resources and population, and under the auspices of the International African Association 12 trading stations have been established, of which great things are expected. The principal of these is Vivi Sta-tion, lying 120 miles from the sea and below the falls, which prevent further direct access to the interior through a navigable channel. A road 100 miles in length, parallel with a series of cataracts, leads to the fourth station at Stanley Pool. from whence steamers can proceed uninterruptedly for 800 miles into the heart of the Continent. Only imagination can portray the future of the Congo River. The French, under Stanley's rival, De Brazza, seem to have been com pletely thwarted in their efforts to reach Stanley Pool by another route from the ocean, but it is yet possible that struggles for precedence in attempting to grasp the prize may end in disaster. It is no wonder, therefore, that the International Peace Congress sitting at Geneva early anticipated the gress sitting at Geneva early anticipated the peril and sought to protect the indefatigable traders by a guaranty of neutrality. Fer-vent wishes will go out from all countries that an enterprise so hopeful in its inception, and for which many valuable lives have been sacrificed, may be pushed forward to a successful achievement.

Labor and Wages in Paris.

In a recent number of the Revue des Deux Mondes, M. Haussonville wrote an article furnishing some valuable information on this subject. The facts and statistics he

and one be detected if derived thy those interested between the rates of and the machine operated by hand. For remuneration for labor in the French capital this purpose a handle is inserted in it. The long shaft can be slotted on this machine and towns of England. First, it may be by bringing the table under an open space of the well-paid workmen, as those who live in the base. This is a feature which we do in the base. This is a having seen before from hand to mouth distrust this means of from hand to mouth distrust this means of applied to a traverse shear machine. The improving their condition. The city of Paris cutter-bar is driven by a variable quickist the great employer of skilled labor, and it appned to a traverse snear machine. The improving their condition. The city of Paris cutter-bar is driven by a variable quickreturn motion and has square gibs. It
possesses all the advantages of the draw
stroke, drawing from the center of the bar. The connecting rod is wrought iron, ceive \$1.50 in summer and \$1.25 in winter, and is made with steel bushings working on Carpenters get \$1.75 in summer and \$1.25 and is made with steel bushings working on currental thimbles. The two tables in the in winter, and tinsmiths, marble masons and painters and glaziers about the same, with, of course, higher rates for those engaged in The the artistle branches, such as fresco and sare other decorations. Owing to the example All gears are cut from the set by the city, wages generally have advanced from 25 to 60 cent. in the various kinds of trades. In those trades which have to do with interior decoration, the wood carvers earn from \$2.50 to \$3 per day, up holsterers and others at the same rate, while German and Italian workmen get from 62 cents to \$1 per day. Machinists earn from machine if so ordered.

St upward, according to their special employment and ability, and here, too, the wages have increased by one-third during the last 10 years, although the gain has been mainly to those earning the highest wages. The average ordinary day laborer, in all kinds of employment, receives from 62 cents and meeting, in 1875, I stated, with some to draw it. It along was practically the average life of bottoms at same as that of infantry, and had its disad- to \$1 a day, and foreigners, who arrive its north Chicago had reached the unheard-of vantages. If the range was correct and the Paris by shoals, manage to save something figure of 11 heats of 5 tons each; the two figures, 55 tons and 159, represent pretty accurately the state of Bessemer practice at the different dates, and the South Chicago figure, being got with direct metal, is parsing figure, being got with direct metal, is parsingly creditable to the management.

The transport of 12 heats of 5 tons each; the two mark remained steady, great execution was done, but the slightest error would throw every bullet out, unless at short range. Both the different dates, and the South Chicago figure, being got with direct metal, is parsingly creditable to the management.

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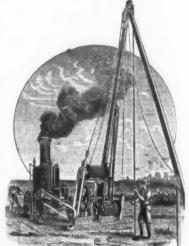
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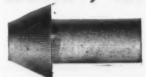
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Industrial Progress in the South.

From time to time attention has been directed, as in our editorial of last week, to the lumbermen migration as yet into the State, except illed labor for the mines and factories,

revival of prosperity in the Southern States, resulting from the development of manufactures, the expansion of real estate and railtures, the expansion of real estate and rati-road enterprises and the general awakening of the people to industry and education. So rapid has been the progress within the past five years that the situation of the South tofive years that the situation of the South today can scarcely be realized at the North.
Some of the glowing details, however, which
reach us from time to time are perhaps more
than substantiated by a series of highly interesting interviews with the Governors of a
number of the States, which we find published
in a recent issue of the New Orleans TimesDemocrat. Alabama, according to Governor
O'Neal, 10 years ago was absolutely bankrupt, but to-day its credit is as good as that
of any State in the Union. Its 5 and 6 per
cent. bonds are quoted at par and above,
while its 3 per cents are worth as much as
the trade dollar. The State does not possess
any land, but the Federal Government holds
43,200,000 acres, which is being rapidly sold 200,000 acres, which is being rapidly sold lumbermen Unimproved land is worth \$1.25 an acre, and improved land an average of \$5 an acre. There has been very little which are rapidly attracting the attention of capitalists. Cotton mills are going up in every direction, and all are flourishing and paying average dividends of 15 per cent. In the manufacture of iron there is already

\$5,000,000 invested, and the sum is increasing every month. The iron mines are in close proximity to the coal fields, greatly lessening the ordinary cost of production. The resources in this direction are enormous. In 1880, when the census was taken, the pig-iron product of the States was but 62,330 tons, but in 1882 this had increased to 225,ooo tons. It is thought that this year the
Birmingham district alone will produce 160,ooo tons, and the rest of the State about as
much more reas on content for the state about as ooo tons, and the rest of the State about as much more—say 300,000 tons, fivefold increase in three years. The total iron produced was 191,000 tons in 1880, 350,000 tons in 1881, 450,000 tons in 1882, and will be close upon 600,000 tons this year. In short, Alabama now ranks as the sixth iron-producing State in the Union. While the minerals of Alabama are to be the chief source of prosperity, there are other sources of wealth that perity, there are other sources of wealth that must take a high rank, especially timber, of which there are some 20,000,000 acres, chiefly pine, cypress and oak, which are estimated

to contain 20,000,000,000 feet of merchantable lumber.

Georgia, however, is perhaps ahead of all the Southern States in the development of varied industries. The exposition of 1881 did much to accelerate its progress in this respect, and in 1882 we find that the aggregate value of all descriptions of states of the second gate value of all descriptions of property increased \$20,000,000. There are now at least capacity, besides many small ones of which we have no notice. These mills have over 300,000 spindles, and are generally in a flourishing condition. Besides these, there are innumerable other manufacturing industries. The capital invested in Atlanta in these other manufacturing industries, according to Government and the capital invested in Atlanta in these other manufacturing industries, according to Government factories are manufacturing industries, according to the property of the state has made such giant strides in this direction that no one has been able to tabulate the industries that spring up establishing manufactories; New Orleans, however, is the chief point of activity, and is seeking to draw prosperity from the property of the p The capital invested in Atlanta in these other manufacturing industries, according to Governor McDaniel, far exceeds the discovering the same of the s

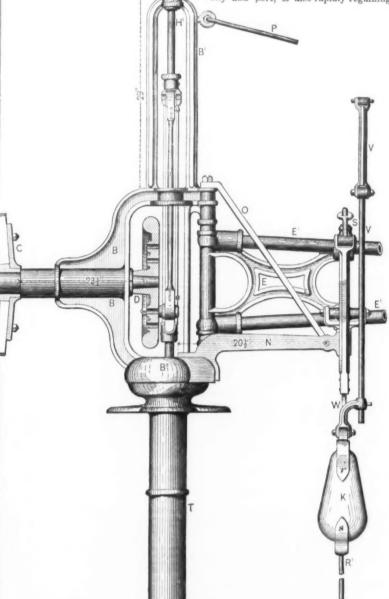
o contain 20,000,000,000 feet of merchant-

springing up rapidly in every quarter of the State. The lumber industry is likely to be very important in a few years. There is an active demand for the timber lands, which can be bought of the Government for \$1.25 per acre, and from private hands for \$2 to \$3. Teunessee is also making r markable Tennessee is also making remarkable progress in the development of her manu-

progress is making in mining and manufacturing, but the chief wealth as yet is land, cotton and cattle. Unimproved land is worth an average of \$3 and improved iand from \$5 to \$100 per acre. None can be had under the Homestead act, but the State is liberal to settlers. The future of Texas is thus especially promising. It is wealthy and wide-awake in every direction, with

towns and cities and railroads expanding with wonderful rapidity.

The State of Louisiana, around which the others cluster, and which has the leading city and port, is also rapidly regaining the



is seeking to draw prosperity from inter-course with the surrounding States. Next year, about this time, a great cotton exhibition—a sort of international fair—is to be opened there, which will be instru-mental in inviting universal attention to the New South and its progress, in developing its resources, but, more especially, to the resources themselves, with the expecta-tion that capital and population will flow in to make that progress still more pronounced.



The Johnstown Tribune of October 3 remarks that the system of improvements in the blast furnaces of the Cambria Iron Comthe blast furnaces of the Cambria Iron Com-pany, now in progress, contemplates four-new furnaces to take the place of the old ones, Nos. 1, 2, 3 and 4, the work of remov-ing the engines and engine-houses of the four old furnaces being now in progress. Two of the new furnaces, Nos. 1 and 2, are now under construction, the foundation for No. 1 being completed and that for No. 2 having progressed so far that its completion. having progressed so far that its completion within the next two weeks is possible, and the furnaces will probably be finished and in blast within the next eight or ten months. The other two will be built as soon as the new ones now in course of erection shall have been completed. The destruction of furnaces Nos. I and 2 was begun in May last, and the new furnaces are located on the site of their old stone stacks, which were built about 30 years ago. The drawings for the new buildings were commenced about three years ago. The first stack for fur-naces Nos. 1 and 2 was commenced two years ago last August. It is 200 feet high, has a stone foundation 38 feet high, and has a stone foundation 38 feet high, and contains over 200,000 bricks. The foundation for the stack of Nos. 3 and 4, is finished, and the superstructure will be commenced in time to have it ready for use when needed. The masonry for the 15 Whitwell ovens for the new furnaces was commenced about two years ago, and is now nearly completed. Six of the ovens are now up, three are ready for use and the other nine are to be built.

An immense amount of stone is being con-

An immense amount of stone is being con-sumed in various ways in these improvements. There are three series of stonework.

The first or lower series is intended for the gives us a very full description of the motor. feet, and the total weight of engine complete foundations of the Whitwell ovens. The From this letter we make the following about 3000 pounds. It was capable of work-

yards. The boilers will consist of seven batteries, eight boilers to a battery. Under the stacks for Nos. I and 2 there is a bed of concrete 6 feet thick and 42 feet square, in each of which 500 barrels of cement were used. Eight engines will drive the new furnaces. They will all be located in the new house. Four of them are now ready for use. Two are in operation blowing the old furnaces Nos. 3 and 4. They are of about 200 horse-power each, were built by the company itself, and are similar in pattern to those in use at Nos. 5 and 6 furnaces. There are about 200 men at work on the improvements, including stone and brick masons, laborers, &c. To facilitate operations and laborers, &c. To facilitate operations and assist in the handling of large stones, &c., six huge derricks are employed. Mr. Joseph Morgan, the company's chief engineer, supervises the work

Strong's Railroad Wind Engine.

The accompanying illustrations show a form of wind engine built by Mr. George S. Strong, of Philadelphia. Pa., for railway

1

Fig. 3.—Rear Elevation.

purposes. Experience has shown that these motors are surprisingly reliable in their operation, and it seems probable that if their performances were better known their range of use would be greatly extended. The details of the machine are exceedingly well worked out, and show that much careful leable-iron clamps to held the wood cross-trade has been given to them. M. Strang.

upper series will be for the boilers and stock the result of a number of years' experience in the construction of this class of machines, and, although the writer has abandoned this particular class, and is no longer interested in their construction, it may be of interest to some of your readers who are. The requirements for a wind engine for this particular class of work are:

"1. The greatest possible strength with the least weight of material.

"2. That the friction should be reduced to the lowest possible point.

"3. That it should be perfectly balanced,

and,
"4. That it should present the greatest
possible sail area; that it should withstand
the heaviest storms and yet be ready to do
its work with the lightest breeze; that it
should be perfectly self-regulating, so as to maintain a regular speed, regardless of the velocity of the wind above the velocity revelocity of the wind above the velocity required to drive it up to its maximum speed. These would seem like rather severe conditions to impose on so simple a machine, and are not as easily met as many an amateur

has imagined.
"To show how these conditions were met "To show how these conditions were met in this machine, we have it fully detailed in the accompanying engravings. Fig. I is a side elevation of the engine, with wheel, arms and rudder broken off, showing construction of wheel center, arrangement of governor and connections of crank. Fig. 5 is an elevation of the engine proper, showing the construction of the wheel and rudder or vane, without any tower, which would come under the bed-piece at T. Fig. 3 is a back elevation of Fig. 1. Fig. 6 is a section through bed-piece and turn-table, showing staple connection with swivel-guide. Fig. 2 is a plan showing position of vane or Fig. 2 is a plan showing position of vane or rudder when full in wind, and arrangement of wire rope for shifting out of wind when it is desired to stop engine. The smaller pieces (Fig. 4.) are clamps and parts of wheel and

The engine is of the hinge-rudder or rudder-governed class—i. e., the class that are governed by the position of the rudder in its relation to the wheel. In this class of mill or engine the turn-table forms part of the governor, and, while the rudder always

the governor, and, while the rudder always holds its position as regards the line of the wind current, the wheel swings around on the turn-table, and, in doing so, presents its edge to the wind, thus diminishing the sail area presented to the wind, and, consequently, the velocity and wind press ure exerted. This is accomplacing the line of the wheel-shaft slightly out of line with the line of the rudder (see Fig. 2), so that the pressure of the wind exerts itself to push the wheel around the turn-table to the left; this tendency is constant, even with a light wind, and is resisted by the lever R, having a swiveled fulcrum at G, and coupled at its upper end by the link S to the rudder, and the fulcrum is supported on a bracket, N, on the frame B of the engine. This lever resists the action of the

engine. This lever resists the action of the wind on the wheel until the pressure is greater than what the lever is loaded for, when the wheel swings around on the turntable, presenting its edge to the wind, or partially so, and, as the wheel has an increasing leverage on the governor, as it swings further around it is necessary that there should be an increasing resistance. This is accomplished by a traveling weight, K on the lever R. This weight is suspended K, on the lever R. This weight is suspended to a point above the fulcrum by the link V, on which it is adjustable, and can be moved up or down to suit the velocity at which the engine is required to run, and, as the lever R rises, this link causes the weight K to travel out on the lever, compensating for the positions of the wheel. The turn-table is a pivot at the bottom of the bed-piece, with a The turn-table is a pivot at the bottom of the bed-piece, with a collar at the top of the same, both of which are protected from the weather and provided with abundant oil cavities. The crank is back-connected and coupled through a staple to the pump-rod, which is hollow to admit of a cable passing down through it to throw the engine out of wind when it is desired to stop it. The staple has a switch guide at the top. it. The staple has a swivel-guide at the top, so that it cannot bind the crank-pin. 'The wheel consists of wrought-iron arms

the wheel consists of wrought-iron arms bent on edge back on themselves, and clamped on a double face plate, there being 12 of these arms, with malleable iron clamps which slip over the arms and clamp the rims study has been given to them. Mr. Strong, pieces which hold the slats. In the engine in

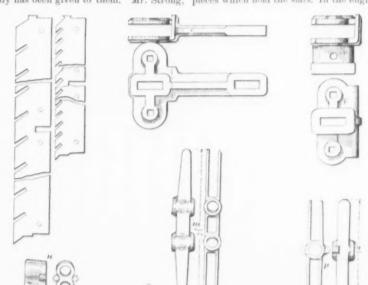


Fig. 4.—Details of Various Parts.

second series, directly above the first, is composed of retaining walls for the casting houses and furnace stacks. The third or since for railway pumping, and embodies gallons per hour on a lift of 75 to 100 feet."

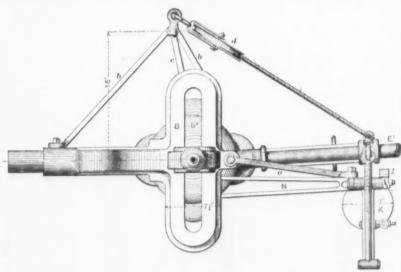


Fig. 2.—Top View of Governing Mechanism.

The special interest in Florida centers in her immense forests, which cover most of the private as well as all of the public lands, and exceed 30,000,000 acres, three-fourths of

creased 100 per cent. in many counties during the past two years; in some from 200 ing the past two years; in some from 200 to 300 per cent. and, in one county, 500 per cent. This is due largely to new entries of lands through the investments of both home and foreign capital, but also to the numerous railroads built within that period. In reference to manufactories, Governor Lowry lands through the investments of both home and foreign capital, but also to the numerous railroads built within that period. In reference to manufactories, Governor Lowry states that these have doubled in the past states that these have doubled in the past of the past o

capital in the cotton mills. All the smaller how much capital is invested in these entertowns throughout the State are starting prises, but both home and foreign money is manufacturing enterprises of every descripgoing into investments which, in all cases, going into investments which, in all cases, have paid handsome dividends." There are at least 17,000,000 acres of fine timber in the State, which includes many valuable varieties of wood, while there are vast undeveloped fields of coal and iron. The coal area,

and exceed 30,000,000 acres, three-fourths or the timber being yellow pine. At present there are some extensive operations in the way of redeeming the wast fertile swamps of the Southern section to the purposes of agriculture. Immigration is steadily increasing.

Mississippi is not less prosperous than its sister States. Its taxable property has incurred to the sum of the 000,000 feet. Manufacturing is beginning to receive considerable attention. There are now several cotton mills, while the cot-

five years; and, what is more, they have been built principally by home capital. Coton mills, seed-oil mills and sawmills are

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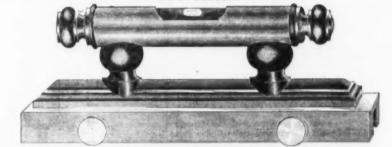
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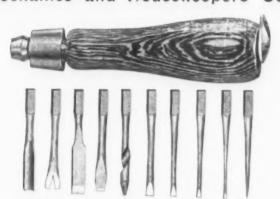
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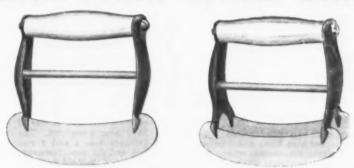
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The tools are 2½ inches long and y-16-inch shank. The handle is rosewood, 6 inches long, with 4 Brad Awls.

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For our Advertisement of the Criffin Hack Saw, See Page 40.

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machines some very curious and interesting facts are learned. For example, in one case, where the quantity of water obtained was their love of display and indulgence in where the quantity of water obtained was their love of display and indulgence in insufficient, the diameter of the pump-luxurious habits, constructed those monuplications are appropriately any appropriable observer in the contraction of hydroxide any appropriable observer in the contraction of hydroxide any appropriable observer in the contraction of th without any appreciable change in the num-ber of revolutions made by the machine. This goes to show that the power of such motors has been underestimated. That the old experiments made by Smeaton, Coulomb and others are not applicable to modern machines is evident, not only from the work done, but from a consideration of the conditions. The wind motors of the present time are decidedly different in construction from those formerly used. The guaranteed performance of the manufacturers in pumping water gives no clew to what can actually be obtained in the way of power, since the margins which are of necessity allowed, the imperfect pumps employed, and the losses which they entail after working a short time, necessitated some of these

The Water Supply of Cities in Ancient Times.

BY WALTER ATLEE, C. E.

It would seem to be particularly interesting at the present time to give some account from ancient authors of the manner in which the famous water supplies of Rome

and other cities celebrated in antiquity were conducted. Ever since men have in-creased in numbers, and have dwelled together for a more or less time in one locality, great attention has always been given to obtain a permanent and abundant supply of pure water. Among pagan nations water was regarded with such reverence that it was customary to give names to fountains and springs, and to place them under the

protection of the gods.
The ancient Egyptian priests, in order to show that all things could subsist only by the virtue of this element, carried solemnly, with religious respect, into the temple where their god was supposed to reside, an ornamental vase filled with water, and there prostrating themselves on the earth, with their hands raised, gave thanks to the divine goodness for his admirable inventions.*

In ancient Rome was celebrated annually

on the III Ides of October (October 13), the feast of the fountains, under the name of Fontanalia. During the half-day which the celebration lasted, the fountains and wells were crowned with flowers, and wreaths were thrown into the springs of running water. The Germans, even a long time after the introduction of Christianity, continued in certain districts to make pilgrimages to several fountains consecrated to pagan gods.

If history furnishes but few and scattered If history furnishes but few and scattered accounts of the art of furnishing cities with water, we find in national traditions and monuments the proof that the science of hydraulics dates back to the most remote antiquity. We know that Persia possesses canals for irrigation, the origin of which is lost in the "night of ages," and which, nevertheless, continue at the present day to perform their functions. In the Province of Anachosia ruins of canals attest the former existence of a vast system of irrigation. At existence of a vast system of irrigation. At Memphis is the ancient aqueduct of Sestorius. Semiramis constructed at Babylon her cele-

brated aqueduct.

The city of Jerusalem was supplied by water through an aqueduct built by Solomon. The whole plain at Persepolis was at one time traversed by hydraulic constructions, the ruins of which show that conduits made of stone and pottery large enough for a man to enter were supported by masonry above the level of the plain. The traveler Tavornier went from Aleppo to Ispahan by the route of the Great Desert, and arrived at a large abandoned palace, before the entrance to which was a reservoir communicating with a canal, then completely dry; the bottom and the roof, which latter was level with the surface of the ground, were constructed of bricks. The Arabs who accompanied Tavernier said that the canal had served to bring water from the Euphrates, which was at least 50 miles distant. Joseph's Well, at Cairo, although of more recent date, is probably the most wonderful subterraneous work ever performed by man. A brief and clear account of this structure is given by Ewbank. There is also at Cairo a long aqueduct, built of masonry, which for its greater length is supported by arcades, constructed about the same time as Joseph's Well.

The engineering skill of the ancient Greeks is shown by the celebrated aqueduct constructed by Eupalinos, of Megara, which Herodotus mentions as one of the wonders of the Island of Samos; this exceedingly interesting object for the archeologist pierces. for 2½ miles, the heart of the mountain back of the town, whose inhabitants it supplied with water from a perennial spring. From an article in Macmillan's Magazine for August, 1883, we learn that a priest named Cyril, from the monastery of the Holy Trinity, last spring, while plow-ing, discovered the long-lost southern entrance of this aqueduct. At a cost of 20,000 francs the Samiotes have now almost completed the restoration of the ancient channel, with the view of again utilizing it in supplying the town with water. Among the ruins of the aqueducts of water. Among the runs of the addeducts of ancient Greece that of Patara, in Lycia, is most interesting. It consists of a syphon constructed with cut stones supported by an arch in cylopean masonry, dating to the most

remote antiquity.

But it is, above all, the Romans who paricularly attract our attention by their hy-draulic constructions, the magnificence and daring of which surpass those of all other nations. Rome is the only city of antiquity of which we have any detailed account of

From those who have used this class of the adminstration of the collection, convey-

ments of hydraulic engineering which Frontinus speaks of as being "worthy of the greatest care, since they are a principal testimony of the grandeur of the Roman Empire," "remensione cwa diman, cum magazine. enixiore cura digmam, cum magnitudinis Romani Imperii præcipuum sit indicium."** At the fall of the Republic, B. C., Rome, according Frontinus, possessed four aqueducts. The Appia, constructed in 442 Roman era, by the Emperor Appius Claudius. The Anio Vetus, built in the year 481 Roman era; the Marcia and the Tepula. The emperors Augustus, Caligula, Claudius and Trajan constructed

arcades. This ruin, now called St. Anthony's bridge, is considered very beautiful.

The want, more and more pronounced, of water at a higher elevation obliged the Roman engineers, especially in crossing the plain near Rome, to support the aqueducts on higher and higher arcades. Thus, the elevation of the Marcia water being insufficient, the Tepula, 19 years afterward, was con-structed at a greater altitude. Ninety-two years later the Julia was built, at a still greater elevation, and 84 years after the completion of the Julia, the water still being too low, the high arcades of the Claudia were superposed on those of the Anio Novus, crossing the plain near Rome at an elevation of 109 feet above its surface. Not only at the Eternal City, but wherever the Romans extended their conquests and established cities, they built those gigantic hydraulic monuments which prove to posterity the great importance they attached to the enjoyment of an abundant supply of water. Among the ruins of these beautiful constructions with which Gaul was dotted after the Roman convent those still general except.

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Fig. 6.—Section at Right Angle to Crank

Disk.

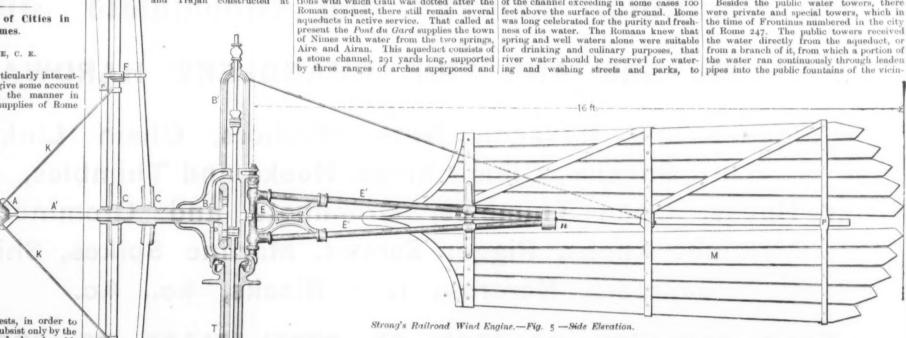
A part of the water of Paris is still supplied

or their remains, are found in most of the large towns. Those of Merida, Toledo and tion. This aqueduct, 19 miles in length, is justly celebrated for its admirable arcades, 700 yards long, composed of 100 arches sup-

constantinople, the Rome of the East, was also justly celebrated for its water supply brought to the city by the renowned aqueducts of the emperors Valens and Justinian. The magnificent Carthagenian aqueduct carried its under the company of the control of the c The magnificent Carthagenian aqueduct carried its supply of water through mountains and over valleys for 70 miles; near the town of Undena it was supported by an arcade of more than a thousand arches, the elevation of the channel exceeding in some cases 100 feet above the surface of the ground. Rome was long celebrated for the purity and freshness of its water. The Romen's these that

ments as Spain, where aqueducts and baths, posited on the bottom of the reseroir. Near the seventh milestone from Rome, on the Latin road, six of the Rome. Tarragona are worthy of being compared to those of Rome i.self. The aqueduct semptied their supply of water into covered wells or reservoirs, from which of Segovia, in spite of the ravages of time, of civil and political disturbances, has never ceased to fulfill its ancient purpose, and to-day still furnishes the city with all the water necessary for its consumption. This aqueduct to miles in length is ervoirs fed from the basin by three pipes which distributed the water equally. These reservoirs were so placed that the center one would receive in times of abundance the sur-plus water of the other two. From this reservoir of the center the water was distributed to the public fountains and amphitheaters. The public baths were supplied with water from one of the other reservoirs. Private establishments obtained from the aters. third reservoir their supply of water. The water towers of the Julia and Claudia aqueducts were very important monuments, the ruins of which still remain.

Besides the public water towers, there of Rome 247. The public towers received the water directly from the aqueduct, or from a branch of it, from which a portion of



Rome other aqueducts, more magnificent than those of their predecessors, so that at the time of Frontinus (850 Roman era, or 97 B. C.) there existed nine aqueducts, namely (in addition to the four already mentioned), the Julia, the Virgo, the Alsetina and the Claudia. The aggregate length of these Claudia. The aggregate length of these most useful monuments was $267\frac{8}{10}$ miles. For $228\frac{1}{10}$ miles the channels were entirely underground, and for 39 miles above the surface of the ground; of the latter $34\frac{7}{10}$ miles were supported by arcades or ranges of

The following brief account of the charac ter and construction of the Roman aqueducts is mainly taken from "Les aqueducts Romains," by M. Belgrand. The first aqueducts, the Appia, the Anio Vetus, and, above all, the Marcia, bear the robust above all, the Marcia, bear the robust character of the masonry of the earliest ages; they were constructed of cut stone, very simply dressed, but adjusted with precision, so that we see that the engineer relied more upon the resistance of the stone than that of the mortar. The Tepula aqueduct was built in 627 Roman era, but to wears after the convolction of the repula aqueduct was built in 027 Roman era, or but 10 years after the completion of the Marcia; nevertheless, the mode of construction was different; during that time the Romans had become masons and understood that with good mortar and rough material they could produce a construction as solid as with cut stone and at a much less cost. The same mode of construction was employed in the other aqueducts, with the addition of the introduction of bricks, except in that of the Anio Novus, which, when it approached city, surmounting the Claudic character of magnificence, the rough materials being abandoned and cut stone tirely employed. The cross-sections of the channels through which the water ran varied from 3 to 8 feet in hight, by 2½ to 5 feet in breadth; the bottom was horizontal and the sides perpendicular to it; the shape of the top or covering varied even in the same aqueduct, it being sometimes arched and at others peaked, and sometimes horizontal or parallel with the bottom. The necessity of maintaining the aqueducts

at a gradual inclination from their sources in the mountains to the place of delivery of the water in the city forced the engin when they came to the numerous abrupt and deep ravines of the Apennines, to build up sub-structures consisting of one or more arches, and often of several ranges of super posed arches where it was necessary to at-tain the required elevation. In traversing the valleys it was often necessary to con-struct those arcades, the ruins of which are at the present day the wonder of all those who behold them, and no traveler considers that he has seen all the curiosities of Rome till he has visited at least the Plain Roma Vecchia, which is so remarkable for the ruins of the ancient aqueducts, especially for ruins of the ancient aqueducts, especially for that of the Claudia, surmounted by the Anio Novus, distinguishable by a high and ex-ceedingly long line of arcades, extending be-yond the power of vision. The first four aqueducts constructed across the valley Degli Archi in the Apennines on magnificent arcades, the ruins of which are classed among the most curious of Italy. There is an aqueduct bridge of the Anio Vetus composed of 35 arches, forming two ranges of arcades superposed, which by the Roman aqueduct passing near Ar-Traverse the valley now called St. John.
The aqueducts Anio Vetus and Marcia descended by regular grades the mountains
Spaceato and St. Angelo, and crossed the first ravine of the Apennines on the same Nothing gives a higher idea of the ancient splendor of the city of Lyons (Lugdunum) under the Roman emperors than the remains of the ancient aqueducts erected under Augustus, Tiberius and Claudius to furnish bridge, also composed of two ranges of the city with water. But no country shared * Frontinus, ch. cxix.

contented themselves with water from the Tiber and from the most agreeable springs of the locality. They had at the foot of Mount Coelis the fountain of Mercury; on the Palatin Hill the fountain of Saturn; from the famous grotto of the Louvre still flows the Lupercale water; in the same neighborhood is also the spring of Castor and Pollux†. A. Cassio speaks also of four other springs. is also the spring of Castor and Pollux 7. A. Cassio speaks also of four other springs—those of Lantulus, of Picus and Faune, of Cybele and of the nymph Egeria. For the waters of these springs and fountains the waters of these springs and fountains the Bernaus had a profound veneration. When no better manner in which to employ the plunder and slaves procured by her victorious arms than by constructing monuments as remarkable for their daring in architectural design as for their utility. She therefore constructed her famous aqueducts, and thus availed herself of the remarkable advantage of being situated on seven hills, at a distance o great from the Apennine Moun-which contain, at a much greater not too altitude, innumerable springs and lakes of pure water, by bringing for the health, com-fort and luxury of her inhabitants this pure liquid to the summit of these hills, by gravity, through aqueducts, and thence distributing it throughout the city. The sources of the water of the Marcia and of the Claudian aqueducts are each 1030 ½ feet above their respective locations of delivery. The water of the Marcian spring, on account of its remarkable purity and agreeable taste, was reserved, by an edict of the Emperor Nerva, ford rinking. Frontinus considered it a sort of profanation to have used this

springs or lakes from which they wished to augment the supply of water for the Eter-nal City, and having assured themselves that the sources were situated at an eleva-tion sufficiently greater than that of the locality where they wished to deliver the water, first collected the water into reservoirs, from which it ran through a channel built of masonry on a regular incline, so that the water might run by the action of gravity to the storage reservoirs from which it was distributed. Sometimes the water was made to pass through intermediate reservoirs, for the purpose of purification, by permitting the water to remain at rest long enough for the mud and other impurities carried along by the force of the motion of the water, to fall and be de-

• Lib. 8, ch. iv. †Belgrand, Idem, p. 17 so well in grand Roman hydraulic monu-

plied with water from special towers, to which the water was brought by conduits from the public towers. Private dwellings were supplied directly from the nearest water tower, or, when situated at a too remote distance, the wealthy inhabitants were accustomed to build private towers for their special use. These towers and the dwellings were each supplied by their special conduits in lead or pottery, each conduit receiving its amount of water from an opening in the water tower to which was attached horiwater tower, to which was attached horisortally a bronze pipe or gauge of a diameter and length, regulated by law, in proportion to the amount of water to be suppled; this diameter was maintained for a distance of 12 digits, or 9 inches, for if the opening alone were of the required diamopening alone were of the required diameter and a larger pipe were attached, immediately the pressure on the water would cause it to fill the larger pipe, and thus supply a greater amount of water than that granted by the concession. This bronze pipe was, therefore, a sort of meter, which, if properly placed and the water of the reservoir maintained at a certain elevation, would indicate the a certain elevation, would indicate the amount of water supplied. From this gauge

> sumer, where it ran continuously, day and night, from a fountain into a sort of basin reservoir, called the "impluvium," forming a part of the "atrium" or vestibule characteristics. The houses were thus supplied with water, through special conduits, directly from the reservoir; the water ran continuously in the court of the dwelling, and not through a large conduit, distributing the water to all the houses near which it passed, nor was the water distributed throughout the dwellings as is customary at the present day. This mode of distribution rendered the expense of a private supply of water very great, for, in addition to his portion of the expense of the maintenance of the tower of the district, the proprietor was obliged to bear the expense of laying the pipe, repaving the street. maintaining in repair this conduit, which was often necessarily of great length. Through this custom of permitting the water to run to continuously, much the greater quantity dis-tributed for public and private service ran to waste. The Emperor Nerva ordered this surplus water to be so used as to continually flush the sewers and wash the streets through some of the latter it ran continu ously, a system so inconvenient that it would not be tolerated at the present day. Indeed, it would seem that the Eternal City would have become uninhabitable but for this have become uninhabitable but for this abundant supply of water. Frontinus considered this employment of the surplus water as one of the benefits of the reign of the Emperor Nerva; he says, "that the superabundant water was no longer useless; the sanitary condition of the city was already changed, the air purer, the causes of that pernicious air, of that infamous air of the city of our forefathers, were destroyed."
>
> Vitruvius has left us a detailed account of

Vitruvius has left us a detailed account of the manner in which very long valleys could be crossed by means of the syphon; but the Romans were only able to employ the syphon where but a small quantity of water was required, for they had not made sufficient advance in the working of metals to be able to economically employ any but lead pipes, and these were of such an inferior

Vitruvius, lib. 8. ch. vi.

attaining an elevation of 160 feet. At Metz the Moselle River is crossed by the At supply the needs of industry, ornamental ity, from which most of the people obtained the fountains and the celebrated amphitheaters where they were so fond of witnessing the famous naval sham combats.

They knew that water, to be good should be limited of a prederate term of the companion of the city more distant from the public water towers, into which the aqueducts emptied, were supplied to the companion of the city more distant from the public water towers, into which the aqueducts emptied, were supplied to the companion of the city more distant from the public water towers. aqueduct of Segovia, which brings water from the valley of Gorge, 23 miles distant. be limpid, be limpid, of a moderate temperature in winter and summer, inodorous and above all of an agreeable taste. Vitruvius* tells us of an agreeable taste. Vitruvius* tells us "that we can, by means of several observations, know the quantity of the water of a district. If it flows along the surface of the ground, it is necessary, before inclosing it in conduits, to consider the physical condition of the inhabitants; if they are robust and have good color, and are not subject to diseases of the limbs or running from the eyes, the water may be considered fit for use. To test the quality of the water of a use. To test the quality of the water of a newly discovered spring it is necessary to throw several drops of it on Corintbian brass, and if it leaves no spots it is a sign that the water is excellent. It will be the that the water is excellent. It will be the same if, after having been evaporated, no mud or muddy deposit remains, and if vegetables boiled in this water cook quickly. Finally, we shall know that the water is light and very healthy if, being clear and beautiful in its source, it deposits in the places by which it passes neither moss, rushes, nor other impurities."

Until the 442d year after the foundation of Rome, or 310 years before the Christian of Rome, or 310 years before the Christian Era, the inhabitants of the Eternal City or meter the water was conducted through conduits in lead or pottery under the paving

beautiful water for ordinary purposes.

The Romans, having decided upon the





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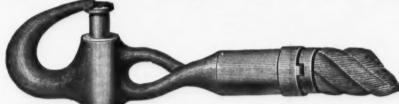
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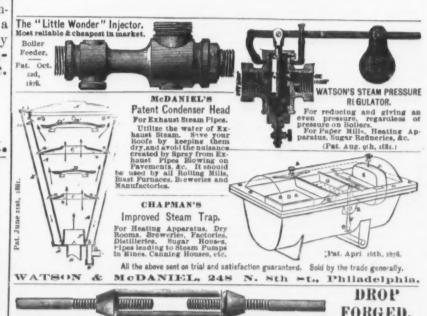
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quality that the force of the water would often burst the pipes, especially in the curves. According to the very careful calculations of M. Belgrand,* the water entering the nine aqueducts existing at the ascension of the Emperor Nerva amounted to 252.000,000 gallons each 24 hours, corresponding to about 252 gallons for each inhabitant of the city; about 27,000,000 gallons of water were extracted inside, and as much outside, the city, in the name of Cæsar, for the use of imperial property, but much the larger quantity (estimated at 83,333,300 gallons) was extracted by fraud. Frontinus tells us that he found fields irrigated, taverns and drinking places supplied by water, the proprietors having fraudulently turned the public water from the accordance. proprietors having fraudulently turned the public water from the aqueducts. Frontinus applied himself so assiduously to prevent these fraudulent extractions of water and with such success that he says, "the quantity of water recovered could be regarded as a new acquisition." † According to M. Belgrand, the amount of water was thus increased to 132 gallons for each person every 24 hours. The water conceded for the public service in the time of Frontinus supplied fields. 30 amphitheaters, 501 fountains fields, 39 amphitheaters, 591 fountains ad lakes, and 94 public establishments.

and lakes, and 94 public establishments.
In the beginning the distribution of water for the city of Rome was very simple; all the water ran from the reservoirs into the public fountains—individuals could only use the water which fell from the inlet of the fountain into the basin. This water, after it had run from the basin of the fountain, was conceded to the public baths and for the use of fullers, they having obtained the right in consideration of paying an annual water rent to the public treasurer. Later, the water which escaped from the acqueducts through leaks was sometimes granted by concession to individuals. Frontinus t very justly remarks that these concessions favored frauds of many kinds, and were, consequently, very rarely granted by the emperors. The adminrarely granted by the emperors. The admin-istration of the water supply was con-fided sometimes to those holding the office of "censor," and at other times to those hold-ing the office of "edile." The maintenance of the aqueducts was ordinarily contracted for, and the contractor was obliged to keep a certain number of slaves employed on the aqueducts. The names of these workmen, their duties and the location in which they their duties and the location in which they were to be employed, were inscribed on the public bulletins. Their work was subject to the approval of the official in charge of the administration of the water supply. The administrator regulated all the details of the service. On the days of the great performance of the service. ances in the amphitheaters no one was permitted to use even the most necessary water without a special order from the adminis-

(To be continued.)

METALLURGICAL NOTES.

A New Form of Center Crane for a Bessemer Plant.

In a paper recently read before the British Iron and Steel Institute, Mr. T. Wrightson, of Stockton-on-Tees, England, submitted particulars relative to a new form of center crane for a Bessemer plant which may prove interesting to our readers. In the Bessemer process, as stated by the author, the center crane has always been considered one of the most important appliances. The molten steel is poured from the converters into the ladle supported by this crane, and the ladle must be capable of motion in several direc-tions in order to fulfill its functions. To accommodate itself to the tipping motion of the converter, it must be able to move vertically up and down a few feet, and for the same object must be capable of a certain amount of horizontal motion. It must also able to move round horizontally at a considerable radius, so as to discharge successfully into the ingot molds placed round the

The ordinary method of satisfying these conditions is to have a large hydraulic ram working in a vertical cylinder. On top of this ram is supported a long platform, on one end of which is placed the ladle, and at the other end a counterpoise, which balances a portion of the weight of the ladle. The vertical motion of the crane is secured by direct action of the water on the ram. The porizontal motion is effected either by a water cylinder or by hand power gearing. orking a pinion into a large wheel fixed on the top of the ram by a hydraulic turning cylinder, or simply by a chain attached to the end of the platform and pulled by hand. It will be readily seen that where there are such large masses of highly heated material to deal with as in a Bessemer pit, it is de-sirable to make the pit as large as practi-cable, to keep the hot ladle and ingots as far from the machinery and men as possible, and to avoid the necessity of the hurried operations incident to a cramped arrangement. The original Bessemer crane has been inreased in rake to meet these requirements, at, owing to its principle of construction, the strain upon the ram, with an overhanging weight of increased amount and in creased distance from the center, becomes so reat that its safety is questionable. reakage of a center-crane ram involves great loss in stoppage of works, and, what is greater consequence, danger to the men ho are near.

These conclusions led Mr. Wrightson some ime ago to look into the question of the center crane, with a view to getting rid, in whole or in part, of the obnoxious breaking strains, and while enabling greatly increased rake, to maintain generally the conditions of structure first settled by Sir Henry Bessemer.

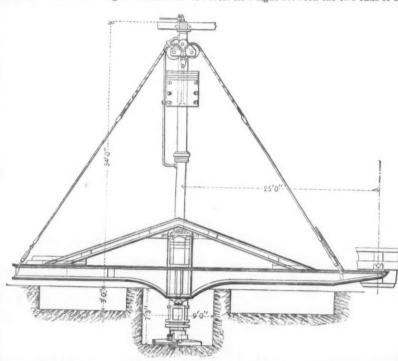
Reference to our engravings will show ow the balancing of the strains in effected. A strong wrought-iron post is carried from a socket in the foundation to a socket in the roof. This post is enlarged in diameter at its lower portion. A cylinder works up and lown upon this part, the top gland of the on the smaller diameter, working and the bottom gland working in the larger d ameter of the post. Thus when water is admitted into the cylinder through a hole in the post, the cylinder itself rises with a lifeing power equal to the difference of the two

Les aqueducts Romains, pp. 98 and 105.

Frontinus, ch. lxxvii. ; Id. chaps. cx and cxl.

quality that the force of the water would areas of the post multiplied by the effective pressure of the water. pressure of the water. Further, by flatten-ing one side of the post at the larger diam-eter, and adapting the lower gland-box to eter, and adapting the lower gland-box to this form, a sliding-key arrangement is produced, so that for horizontal rotation the cylinder and post move round together. Two steel trunnions are mounted upon this cylinder, and the platform for supporting the ladle is socied, upon these in such a way that a very poised upon these in such a way that a very slight rocking motion of the platform upon

than half is run out, the preponderance is transferred to the opposite end of the platform. As this takes place, the opposite chains are tightened by the action of the fixed balance weight, until, by the time the than half is run out, the preponderance is whole of the steel has run out of the ladle. the entire weight of the annular balance is hanging on the set of chains opposite to the ladle, and, in fact, balances the whole effect of the fixed weight on the platform. This transmission of the forces is entirely these trunnions can take place. The plat-form is made very rigid by trussing, and half the maximum weight of steel to be



A New Form of Center Crane for a Bessemer Plant.-Fig. 1.-Elevation.

counterweight at the opposite end of the

We have still left one-half the weight of the steel unbalanced, the effect of which we wish to neutralize or remove to another portion of the structure. To accomplish this chains are led from each end of the girders forming the platform over sheaves fixed in a strong frame at the top, and forming part of

distinct saving of water.

The advantages claimed for this system are: I. The obtaining of a much greater rake, thus enabling a much larger, safer and more convenient pit to be used. 2. The foundations are much less costly, and the breaking strain brought upon the ram by the overhanging weight. 4. The turning of the whole crane is very easy, being on a steel pivot, the cylinder and post moving together, instead of (as is frequently the case) the ram

Gold in Scandinavia

The recent discoveries of gold in the Scandinavian countries are of interest to those engaged in the working of this metal. Pure gold appears in nature in two forms; firstly post, which acts as its guide, the points of connection of both sets of chains being the as metallic-i. e., as leaves and threads, generally in a gangue of quartz in the solid rock secondly, as alluvial in the beds of rivers viz., by the action of water on the aurifer ous rock. In the latter form gold is found Let us first imagine the ladle in California and Australia, where it is

lifted in the ladle is balanced by a fixed platform in the exact proportions required to maintain equilibrium, and this without affecting any of the other motions of the crane which may be going on at the sam

> The costly underground foundations are unnecessary, as the footsteps supporting the crane can be on the level of the casting pit, all the machine being above ground, and the parts visible and readily accessible. The water pressure is admitted and the exhaust water returned through an ordinary revolving joint at the top of the post immediately above the socket. A hole drilled through the center of the post admits the water to the cylinder at the point where the enlargement of the post takes place. In place of the annular balance weight a small hydraulic cylinder can be substituted, which with a constant pressure would effect the balancing, as in the case of the weight; or the chains can be carried down, passed under the sheaves at the foot of the post, and returned to the main cylinder or to the platform; but the balance weight appears preferable on account of its simplicity. It also effects a

machinery is all visible and accessible, not machinery is all visible and accessible, not being sunk in deep pits, as in other cranes. 3. There is a large saving of high-pressure water as compared with the ordinary Eng-lish form, where the size of ram must be in excess of the area required for lifting, in order to provide strength to resist the great breaking strain brought upon the ram by the being wrenched round inside the glands, in which latter case the custom is to keep movwhich latter case the custom is the ram up and down as it revolves, to ing the ram up and down as it revolves, to revent the packing getting jammed. The prevent the packing getting jammed. The large loss of costly high-pressure water due to this necessity is entirely obviated in this crane.

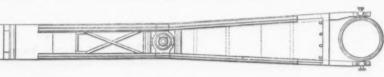


Fig. 3.-Top View.

chains, neutralizing so much of the dead weight of the platform, and thus saving so much water pressure in the cylinder. Secondly, let us suppose the ladle to be filled with steel. Half the total weight of steel end., and thus automatically any preponderant weight in the ladle is balanced. As the steel is run into the ingot molds the preponderance becomes less, until, when more

Fig. 2 .- End View.

the crane-post immediately under the top

horizontally with the crane-post and cylinder. The two sets of chains, after passing

over their respective sheaves, descend to a heavy balance weight of annular form sur-

rounding the upper portion of the crane-

same, and in a plane passing through the center of gravity of the weight, so that it may

hang indifferently on either one or the other

at the sheave

half full of steel. It is obvious that the by the careful sifting of river sand, the pure fixed counter-weight at the opposite end of the platform balances this amount of steel, and the annular balance distributes its weight equally between the two sets of variety of the dealerst string or liver stand, the plate fixed by means of quicksilver. In the same form gold has, during the last few years, been found in the rivers of Scandinavia, These rivers spring from a common outlet in Lapland, where some auriferous rocks are to be found, and penetrate Norway and Finland. The rivers where the current is very strong carry alluvial gold, which is This, however, cannot take place, owing to the rigidity of the platform, without the opposite end being raised to an equal extent.

The depression of the ladle end therefore tightens its chains, while the elevations are the contents of the contents of the ladle end therefore tightens its chains, while the elevations of the ladle end therefore tightens its chains, while the elevations of the ladle end therefore tightens its chains, while the elevations of the ladle end therefore tightens its chains, while the elevations of the ladle end therefore the end of the platform. It is considered in a stratum varying from 7 inches to 12 inches in thickness. In the Norwegian rivers gold washing was carried on during the years 1874-75 by a firm of Norwegian merchants, but, as the undertaking returned calls. undertaking returned only insignificant results, it was finally abandoned. Durtightens its chains, while the elevation of the opposite end slackens its chains. By this means the whole weight of the annular balance comes on the tight chains at the ladle

R. N., have carried on gold washing in

ceased, however, from want of capital, but operations are about to be resumed there by a newly-formed company, with good pros-pects. The gold is found there in veins in the rock as leaves and threads, as well as interspersed in pyrites of sulphur. In this form it has also been found in a few other places in Norway, but not in any large quantities. In Sweden gold has been found durtitles. In Sweden gold has been found during several centuries, the chief place of occurrence being King Gustavus's mine in Falua, which produced in 1877, 12 pounds; 1878, 23 pounds; 1879, 8 pounds; 1880, 13 pounds; 1881, 5 pounds. The gold found here is of excellent quality. The same rocks which produce the alluvial gold in Norway, also produce the gold found in the rivers of also produce the gold found in the rivers of Finland. The gold washing in these rivers yields about 20,000 grams of pure gold per ear, valued at some \$15,000, many laborers being employed.

Interesting Discoveries at the Brooklyn Navy-Yard.

From time to time Congress orders the sale at public auction at the different navy-yards of stores, supplies, machinery and material which have become useless or cannot profit-ably be used in reworking or reconstruction. The necessity for such sales is indicated by reports at stated intervals from the heads of bureaus in the different yards to the bureaus in the Navy Department of which they form a part. These reports are based upon inwentories of the accumulated material, sup-plies, &c., on hand, and are incorporated into a catalogue, copies of which are fur-nished the commandants of the yards for the use of bidders. The yard inventories are made by clerks in the bureaus, who are appointed from civil life. They state, under the proper bureau head, the character of the articles to be disposed of, with the amounts

of each. One of these sales occured at the Brooklyn Navy-Yard a short time ago. Messrs. John H. Draper & Co., of this city, were the auctioneers. Prior to the sale the firm sent out a large number of postal cards to persons engaged in handling ships' wares and junk, engaged in nanding snips wares and junk, giving them notice of the auction. The result was that between 200 and 300 persons attended the sale. As the sale went on, a curious feature was developed. Although the bidding was active and there was an evithe bidding was active and there was an evident intention on the part of the bidders to pay all the articles were worth, a few persons seemed to be bidding everything in. And not only that, but the prices paid were extravagant and far beyond the market value of the articles. The result was that when the sale was closed the Government had apparently made a good thing out of it. But Mr. Draper's 20 years in the ship-chandlery business had taught him a thing or two, and he knew there was something crooked about the heavy prices paid and the limited number of buyers. Mr. Draper therefore called on Commodore Upshur, the commandant of the yard, and communicated to him his suspicions. Mr. Draper told the commandant that he had made the sales, but he desired that the commandant should attend to the delivery. Commodore Upshur at once appointed Commander Whiting to superintend the delivery and weighing of all the articles sold, and instructed him to give passes to the drivers whose loads had been passes to the drivers whose loads had been properly weighed. The guards were directed to let no loads of material pass out of the yard unless the driver had one of the passes, countersigned by Captain Meade, the captain of the yard.

Then the commandant acquainted heads of the bureaus in the yard with Mr. Draper's suspicions, confirmed by information from a great many other sources. They were, in effect, that the amount of the articles sold greatly exceeded the amounts represold greatly exceeded the amounts represented in the inventory, and that the buyers who paid extravagant prices knew what they were about. Mr. Draper said that he did not question the honesty of a single naval officer in the yard, but he thought if he was a chicken he would roost pretty high in that vicinity. He intimated that the heavy buyers calculated on taking from the yard not only the amount given in the inventory of each article, but all there was of it in the rticle, but all yard. The excess of material over the amount indicated in the catalogue was often very great, and more than balanced the excessive price paid. Most of the articles on which this method was employed were sold by the pound or ton, and the buyer was required to take as much as the catalogue stated that there was of the article. He hoped to get the entire amount, and could nau to pay for at all. Every buyer was required by the terms of the sale to make a deposit of 25 per cent. of the purchase money, and this stipulation, as it eventually proved, saved the Government from how

The Bureau of Equipment and Recruiting was represented in the sale by over 1,000,ooo pounds of chain cables, among other oco pounds of chain cables, among other things. Of this, 280,800 pounds was bought by one man, who paid 3 cents a pound for it. The market value of the cable would not exceed 1½ cents a pound. The same man bid in 11,657 pounds of shackles, valued at 2½ cents a pound, paying 5 cents a pound for it. The lot of chain exceeded by 120,000 for it. The lot of chain exceeded by 120,000 pounds the amount on the catalogue, and the shackles 12,000 to 15,000 pounds the catalogued quantity. The remainder of the chain, amounting, according to the inventory, to 651,510 pounds, and valued at I cent a pound, was bid in by a firm at 2½ cents. For reasons which will be explained further For reasons which will be explained further on, this lot of chain has not been taken from the yard, and the amount of excess is unknown. A lot of shakings (small bits of oakum), amounting to 15,549 pounds, worth 1½ cents, was bid in at 5½ cents. The amount named was taken away and more than as much more remains. Brass worth 11 cents was bid in at 14 cents by the firm five 125-horse-power engines. In the summer only three of the engines were worked. Lately, however, owing to the earlier night

profit out of the Government, as the buyers profit out of the Government, as the buyers intended, they would be heavy losers. On every purchase the pay clerk of the yard held a deposit of 25 per cent. In order to get the material which this amount represented, the purchasers would have to pay the balance due upon their purchases, taking the catalogue amounts at the prices at which they were knocked down to them. As these prices were, on an appropriate double the actual. prices were, on an average, double the actual value of the goods, the losses were heavy. On one purchase, amounting to \$10,000, one man lost \$4500. Another, who bid in property worth perhaps \$40,000 at \$50,000, loses the difference if he gets his deposits. A number of small fry, who bought in small amounts, expecting large excesses, were also losers. One dealer estimated the total loss at \$75,000. It will probably not reach that at \$75,000. It will probably not reach that amount, however. It would appear that the bidders could not hope to succeed in carting away leads of material which did not appear on the inventory without help from employees of the yard. This was suggested to Commodore Upshur, and he was asked if he suspected any person. "I cannot appear appears to the probability of the proba suspected any person. "I cannot answer that question," he said. "It would be an impropriety for me to say I suspected an employee of the yard without first informing the department of that fact. One thing I can say, however, and that is that I have perfect confidence in every officer in the yard.

The Morris Patent Door Knob.

The engravings herewith presented illustrate a new invention in door knobs, manufactured by the Morris Sash Lock Company, of Cincinnati, Ohio, the special features



Fig. 1.

which are a revolving screw thimble upon a serrated spindle in connection with a serrated drop, over which the thimble is turned, holding the spindle in position and fastening the whole securely, thereby avoiding the use of washers and screws entirely; also a rose that has upon its interior side wedge shaped teeth, so arranged as to fit the grain of the wood, and securing it to the same without

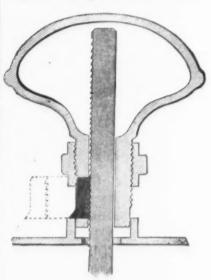


Fig. 2.

tured in bronze, of ornamental design, and are adjustable to any thickness of door from 1 1/4 to 2 1/2 inches.

Messrs. A. R. Whitney & Co., of New York, who are agents for the Norway Steel and Iron Works, South Boston, say they are turning out steel plates of most excellent quality for the new Government cruisers. Samples taken at random gave 66,000 pounds Samples taken at random gave 60,000 points tensile strain per square inch, with 30 per cent. elongation, as tested by Lieut. F. J. Drake, U. S. N., Government Inspector of Materials. Every plate has to be put through the quenching process besides, which makes the test a very severe ordeal.

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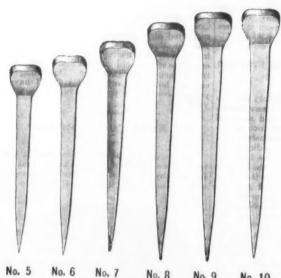
When these details came to light, Commodore Upshur saw that the game was in his hands, and that, instead of making a great

Lately, however, owing to the earlier night fall, more lights have been used, and there has been a corr sponding demand for power. The wires leading from the plant run under-

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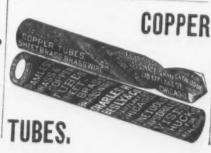
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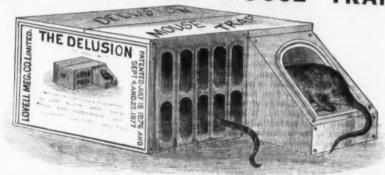
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And shuts the door by his own weight.
And then he tumps right through a hole
And thinks he's out; but, bless his soul,
He's in a cage, smehow or other.
And said the trant to catch mother

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J and I onal pro for the de Fay vs. 1 Court of 1 decision ing the direspasser were enti ment, but

joining his pose, ar judgment ARRIER. -DLE A swind ble merchand had a the name a

store; but cigar dea which was mantity of enuine dea ods were who had a s who showed

merchant, l ground that wrong person he case—Sa ried to the S

ground, and in order to guard against accident from charging the wires too heavily with electricity, safety-catches are used. These catches are ribbons of lead 3½ inches long, ½ inch wide and ½ inch thick. In one end there is a round hole, and in the other there is a slot. The catch is let into a wire, and the current runs through it. If the current becomes too strong the lead melts, and the circuit is broken before the wires can be heated to a dangerous point. The safety catch is one of Edison's patents, and is used chiefly as a guard against fires. The safety caten is one of Edison's patents, and is used chiefly as a guard against fires. On the evening in question the wires were too heavily charged and many of the catches melted, and all of the 4700 lights which are fed from the Pearl street plant which were lighted went out. Almost immediately the telephone began to ring at the company's office, and demands were made for the lights, and messengers besieged made for the lights, and messengers besieged the station to find out what was the matter. It was said at the station that the greatest number of lights are used between the hours of 4.30 and 7 o'clock in the evening, and that later the demand eases up. The safety catches are in iron boxes with lids, so that they are readily accessible. A large force of men were put to work immediately after the accident to repair the breaks.

Surface Grinding and Shaping Machine.

This machine is intended for doing with an emery-wheel a portion of the work usually an emery-wheel a portion of the work usually done with the file, planer and milling machine. It is specially adapted for surfacing, finishing or cutting down work where the material is of a hard nature, as the surface of dies, punches, &c. With it the workman is enabled to do a much larger amount of work at a great saving of files and other tools. The machine is provided with a table or platen, which can be raised to the wheel or lowered, and has both a transverse and longitudinal movement. The work can be fastened to the table by the ordinary methods obtained a writ of error to the Supreme

sachusetts, where the judgment was affirmed. The Chief Justice (Morton), in the opinion, said: "The question whether under these circumstances the property in the goods passed to the swindler, so that a purchaser in good faith could hold them against the plaintiff, is one not free from difficulty, and upon which there are conflicting decisions.
In a recent English case, quite similar to this, it was decided that no title to the property passed, and that the innocent purchaser was liable for its value. But it is not necessary to decide this question, because the lia-bility of the defendant as a common carrier does not necessarily turn upon it. The contract of the carrier is not that he will ascertain who is the owner of the goods and de-liver them to him, but that he will deliver the goods according to the directions. The plaintiff contends that he intended to send to the real merchant, but it is equally true that he intended to send them to the person with whom he was in correspondence. We think the more correct statement is that he intended to send them to the man who ordered and agreed to pay for them, supposing erroneously that he was the genuine merchant. It seems to us that the defendant, in answer to the plaintiff's claim, may well say: 'We have delivered the goods insay: 'We have delivered the goods in-trusted to us, according to your directions, to the man to whom you sent them, and who, as we are induced to believe by your acts in dealing with him, was the man to whom you intended to send them; we are guilty of no fault or negligence.'

SAVINGS BANK-STOCKHOLDER'S DEBT-LIEN OF BANK.

S, a stockholder in a savings bank, died heavily indebted to the corporation. The bank went into liquidation and declared a dividend, but refused to pay the estate of S, claiming that it could apply the amount of the dividend to his indebtedness to it. An action was brought to recover the dividend,

Surface Grinding and Shaping Machine.

ne Company, 38 and 40 Hawley street,

as issued and levied upon the firm's per-nal property for a debt of F's making. brought an action of replevin for the reperty. The trial court gave judgment or the defendant, and F carried the case—ay vs. Duggan—to the Supreme Judicial ourt of Massachusetts, where the following on was made, Judge Colburn deliver-he opinion: "The defendant was a the opinion: respasser, and the owners of the property were entitled to recover it in an action of replevin against him; but both partners hould have joined in the action. As the ase stands the defendant must have judgent, but if the plaintiff elects to amend by oining his partner with him, he may do so on such terms as the court below may udgment is to be entered for plaintiff." ARRIER. - DELIVERY OF GOODS TO SWIN-

DLER-ASSUMPTION OF NAME.

A swindler assumed the name of a reputale merchant at Saratoga Springs, N. Y.,
nd had a business letter-head printed with he name and business of the true person on t, but with no number or locality of the store; but there was the number of the postfice box on the heading. He then wrote to cigar dealer in Boston for his price list, which was sent to him at his post-office box, and, therefore, an order was sent for a quantity of cigars. These cigars were sent y a common carrier, who took them to the couine dealer, who refused to receive them. saying that he had not ordered them. The who had a store with the false name over it. who showed the bill he bad received. The merchant, having lost his goods, sued the carrier for the conversion of them, on the ground that they had been delivered to the wrong person. The defendant prevailed in the case—Samuel vs. Cheney—and it was carried to the Supreme Judicial Court of Mashine the case—species of merchandise for sale, an award was made against him. An action was brought on the award, and set up the house, firm or business, pay a license of \$50 defense that the award was not valid, as no death-roll at all.

for the planer and milling machine by chucks, Court of Pennsylvania—Merchant's Bank of aws or straps. It is made by the Union Easton vs. House, administratrix—but that Easton vs. House, administratrix—but that court affirmed the determination below. Judge Gordon, in the opinion, said: "The defendant's charter did not give the bank a LATEST LEGAL DECISIONS.

LATEST LEGAL DECISIONS.

defendant's charter did not give the bank a lien upon S's stock for any debt he might own it, neither can we entertain the idea that the defendant had a common-law lien upon S's stock. Corporations are not the property—replevin by firm.

defendant's charter did not give the bank a lien upon S's stock for any debt he might own lien upon S's stock for any debt he might own lien upon S's stock. Corporations are not the therefore is only 'an animated letter.' A sufficient answer is that the Legislature has property—replevin by firm.

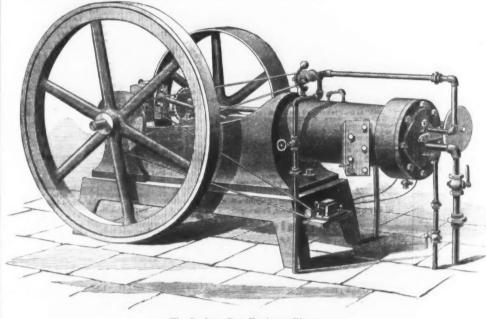
Accidents on New York's Railroads.—Figures now at hand relative to the growth of the railroad system in this State show in the common law. Such a thing lien upon S's stock. Corporations are not the therefore is only 'an animated letter.' A sufficient answer is that the Legislature has property—replevin by firm.

Accidents on New York's Railroads.—Figures now at hand relative to the growth of the railroad system in this State show that 477 persons met death in 1882 on the as a common-law corporation is wholly un-known to the laws of Pennsylvania; hence these artificial bodies can have no common-law rights, except as such rights may become incidental to the proper execution of the legislative grants by which such bodies are created. But when for a corporation a distinct power or right is claimed, as in the present case, such claim must have for its foundation some statutory grant, or it has no validity. Besides, it has been decided in no validity. Besides, it has been decided in this State that there is no such thing as a common-law lien on stocks in favor of poration for a debt due it by a shareholder. LEASE-RENEWAL UNTIL WANTED FOR BUILD-

. ING-RIGHTS OF GRANTEE.
In a case of land there was a covenant that the lessee could have a renewal of the lease at the same rent unless the lessor wished the land for building purposes. The lessor sold the property and his grantee gave the lessee notice to quit, as he intended to build on the land; but the tenant refused to leave on the ground that the grantee did not succeed to this right of possession for build-ing purposes. An action for possession was brought by the grantee—Leppla vs. Mackey—and he got a judgment. The tenant ap-pealed to the Supreme Court of Minnesota, where he was again defeated. Judge Dick-inson, in the opinion, said: "Although the covenant for a renewal of the lease was made merely in favor of the lessee, it is well settled that such a covenant runs with the lind to one who, by assignment, comes to stand in the place of the covenanter; and we must construe the clause as to possession as inseparable from the covenant, and that it has the effect to reserve to the grantee the

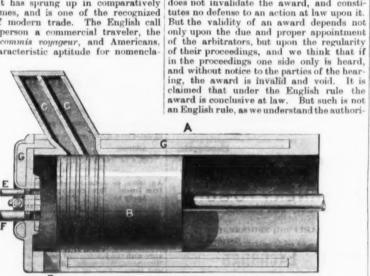
DRUMMER'S " LICENSE-WHO IS A "CLERK." By a statute of Louisiana, "All traveling agents of this or other State or country

per annum, and, if representing two houses, firms or businesses, shall pay a license of \$75 and place of the hearing before the arbitraper annum." In an action to recover a license of \$50 against an employee of a New Orleans firm, the defense was made that, as he was a "clerk" of the firm only, he was not liable. Judgment was recovered against



The Parker Gas Engine .- Fig. 1.

him, and he carried the case—Woodward opinion, said: "It is contended that the case of a sudden explosion. The mixture of decision appealed from is erroneous, because air and gas suitable for a charge in the Louisiana, where he was again defeated. Louisiana, where he was again defeated. Judge Manning, in the opinion, said: "The defendant is employed at a monthly salary to sell goods outside of New Orleans as a to it, and of the parties' selection, having jurisdiction of the subject matter submitted to it, and of the parties by whom the subtraveling salesman for his firm. The business of a traveling agent is quite distinct from that of a clerk who is a salesman in a store. It has sprung up in comparation store. It has sprung up in comparatively recent times, and is one of the recognized needs of modern trade. The English call such a person a commercial traveler, the French commis royageur, and Americans, with characteristic aptitude for nomencla-



A, Cylinder. B, Piston. C C, Auxiliary Chambers. D, Exhaust Port. E, Gas Port. F, Air Port.

Fig. 2.—Section of Cylinder.

ture, call him a drummer. The defendant travels through the country, solicits orders, sells goods by sample or otherwise, and transmits the orders to his employers, who fill them as he has agreed. If one were asked to say what sort of business was that of a drummer, he would describe it in this or other language of like import. Can a drummer wade the license tax by calling himself a clork? and accepting a salary instead of clares that 'no person shall be deprived of a 'clerk,' and accepting a salary, irstead of taking commissions or other varying compensation? The business of a clerk is not distinguishable from that of a drummer by the means of compensation. It is argued letters,' under the name of traveling agents. that 477 persons met death in 1882 on the saving from 8 to 10 feet per hour over the A firm, if it so please, can rely on correspondence to enlarge its business, but if it adopts this modern method of drumming as the more effective mode, the drummer be-comes liable for the tax."

ATTACHMENT-" CONTINGENT RIGHT OR CLAIM -PERCENTAGE RETAINED ON CONTRACT.

Under a contract to erect a building, 10 per cent, of all bills rendered for the work was retained to be kept as damages for fail-ing to complete the building by a specified time. A creditor of the builder attached the sum retained as "a contigent right or claim" due, and judgment was given for him. The defendant carried the case—Webber vs. Bolte—to the Supreme Court of Michigan, where he got a reversal. Judge Cooley, in the opinion, said: "The case may seem to be within the words of the statute, but it is not within its intent or reason. To permit an attachment upon such claims would be a most unwarrantable interference with the contracts of third parties, and must in many cases deprive them of substantial rights. It would be especially mischievous in the case of building contracts, for in a very large proportion of all cases of such contracts the eans of their fulfillment must be obtained means of their fullillment must be obtained from payments on the estimate, and if these can be attached in advance, performance would be rendered impossible. If there is a contingent claim here, so there is when a laborer hires out for a year, to be paid at the end of the year, and his creditor may attach the claim as soon as the hiring takes place. It would be a safe assumption that very little labor would be done under the hiring after the claim had been attached."

ARBITRATION-ONE PARTY NOT NOTIFIED.

ture, call him a drummer. The defendant | ties. The right to notice of a time and place clares that 'no person shall be deprived of life, liberty or property without due process of law.' The award in this case having been made upon a one-sided hearing only, and no notice of the time and place of hearing hav-

The Parker Gas Engine.

Some little time since we made allusion to a new gas engine that was described as avoiding many of the difficulties encountered in the ordinary machines in getting economical results. The engine is the invention of Mr. L. C. Parker, of Robinson, Kan., and is, in

many respects, a decided departure from the ordinary method of construct

rig these engines.

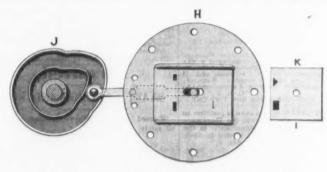
Fig. 1 shows an external view of the machine, which does not differ very materially from the ordinary gas engines, except that the moving parts are that the moving parts are considerably reduced in number. The bed, crank, fly-wheel, pulley-wheel, and the general form of the cylinder, are the same with which most of our readers are familiar. The valve and the mechanism valve and the mechanism by which it is worked are of an exceedingly simple character. Instead, however, of the ordinary complicated mechanism in igniting the charge, a small dynamo machine is small dynamo machine is employed, and after the valves are closed the spark fires the mixed gases. The inventor's chief aim in this engine has been to secure a more equal distribution of pressure on the cylinder than can be attained by means

cessive rapidity (in about the twenty-seventh part of a second), and this, in connection with the intense heat produced, gives us very nearly an equivalent to a blow as the piston passes the dead center. This, of course, is largely converted into heat, and the inventor seeks a remedy against this by diminishing as far as possible the quantity of gas exploded at the first instant, and igniting the charge in detail, as it were, producing a series of explosions instead of one. In the Parker engine the charge is forced into compartments and auxiliary chambers directly connecting by ports with the bore of the cylinder. These are opened in succession by the motion of the piston, and their contents are successively exploded as the piston travels forward, the flame from the first charge igniting the gas in the second compartment

and so on until all have in turn been fired.

The demonstrations of this successive firing, which the inventor showed us at an exhibition of the engine at Yonkers, are all obtained by straightway valves in one of the chambers. When the engine is in motion the flame is seen to continue a sufficient length of time to be projected, still alight, through the chamber out of the stop-cock when opened. The construction by which this is effected is bost shown in Fig. 2, where A is the main cylinder, G the water space surrounding it, and C C two auxiliary chambers into which the mixture is compressed at the inward stroke of the piston. The charges in these chambers are exploded by bers into which the mixture is compressed charges in these chambers are exploded by the flame from the first explosion. The valve for the admission of the charge is located in the cylinder head and is driven by a cam which is shown in Fig. 3. This cam, it will be seen, is so arranged that the valve only moves when there is no pres-sure on it. This, of course, reduces its wear to a minimum. We show the valve his itself. sure on it. This, of course, reduces its wear to a minimum. K shows the valve by itself, and I is a view of the valve seat when it is set in connection with the cam, being held in place by the internal pressure. The valve can be worked directly by means of a projecting stud in the slot. This is done without the necessity of having a stuffing box.

The dynamo by which the electric spark is produced is driven by a 1/2-inch round belt from the engine crank-shaft. The use of the dynamo for this purpose seems, on the face of it, one step in the right direction, in very materially simplifying the apparatus obtained by its use. The flash of the spark is obtained by simply breaking the current within the cylinder. Even a diluted or weak mixture of gas and air can be exploded readily, it is said, because the flash occurs



H, Cylinder Head. I, Valve and Seat. J. Cam Wheel. K. Valve

Fig. 3 .- Cam, Cylinder Head and Valve.

This proves that only I passenger out of every 4,168,223 was killed, and that 104,836,-763 miles ware transled. of rail (reduced to single track). The New York Central and Hudson River Railroad, which killed the next highest number of Under an agreement to arbitrate, one of passengers, 135, has in operation 2334 miles the parties had no notice of the hearing, but of rail. The deaths resulting on the other an award was made against him. An action railroads of the State are in each case under actual power is made available for labor. A was brought on the award, and set up the 25. Twelve of the 59 railroads have no 4-horse-power engine can be seen at the

railroads, of which number only 16 were jet method. The power required to oper passengers, 141 employees and 320 others. ate the dynamo is insignificant, a slack This proves that only I passenger out of 4-inch belt being ample for the purevery 4,168,223 was killed, and that 104,836,763 miles were traveled at a cost of a single
life. The injured foot up 1724. This total
was made up of 116 passengers, 672 employees and 336 other persons. These statistics are exclusive of the fatalities and injuries inflicted on the elevated railroads. On
this system 17 were killed and 134 injured
in the course of the year. Fatal consequences to the number of 147 are recorded
on the lines of the New York, Lake Erie and
Western Railroad, which operates 1072 miles
Western Railroad, which operates 1072 miles
A coll (reduced to single track). The New horse-power. The engine is started by simpose. The governor is automatic, and is arranged to control the gas-valve. In reguhorse-power. The engine is started by sim-ply turning the fly-wheel around. The gas consumed is in direct proportion to the labor performed. By avoiding the great loss ex-perienced heretofore by friction, much more American Institute Fair, New York City.

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WANTED-Situation by a Blast Furnace Manager who has planned, erected and managed works of the largest class. I has been accustomed to the details and management of Mines. Railroads, and all efficient will be selected and accustomed to the details and manager. Twenty years' experience; active and accustomed to work. Address. But to the Street, New York City.

SITUATION WANTED.—By a men, a position as Buyer or Salesman (in Store) in the Hardware Business. Have had 12 years' experience in the Hardware Business, and am well posted in Gen-eral Hardware. Address, "G. S," Office of The Iron Age, 83 Reade st., New York.

CALESMAN. &c.—Twenty-seven years old, Twelve years' experience in General Hardware. Tools, Metals and House Furnishing Goods. Best references past and present employers. Well posted in all branches. Will go out of the city, "YOUNG." also West 10th st., N. Y. City.

SITUATION WAN IED—By a First class Travel-ing Salesman, in the Hardware, Metal and House Furnishing line. Is also an experienced Buyer and an expert Bookkeeper and Accountant, Known and traveled all over the United States and

"HARDWARE,"
P. O. Box 1271,
New York City.

A THOROUGH HARDWARE MAN

of experience is open to negotiation as Salesman Office of The Iron age, 83 Reads street, New York.

HAVE A: REFERENCES from Wholesale and Retail Houses. Wish post

tion with either. Address L. F. G., Office of The Iron Age, \$3 Reads St., New York.

Special Notices.

ENGINES AND BOILERS.

One 11-in. Shaper, Traveling Head. Richardso & Moore.
One Double Belt, 20 inches wide, about 75 feet long. ie 5 ft. by 26 in. Iron Planer. New Haven Mfg. Co. R. Bishop.

One of 13 of 18 of

HENRY I. SNELL. 135 N. 3d Street, Philadelphia.

For Sale. Bolt and Nut Machinery.

o Bolt Cutters, National, capacity up to 1 in.
10 Bolt Cutters, National, capacity up to 1 in.
11 Bolt Cutters, National, capacity up to 1 in.
12 Bolt Cutters, National, capacity up to 2 in.
13 Bolt Cutters, National, capacity up to 2 in.
13 Bolt Cutters, National, capacity up to 2 in.
14 seach, 3 in. and 4 in.
15 National Bolt Headers, capacity up to 1 in.
16 National Bolt Header, 1 in.
17 Improved Lewis Bolt Header, capacity up to 1 in.
18 Improved Lewis Bolt Header, capacity up to 1 in.
18 Improved Lewis Bolt Header, capacity up to 1 in.
19 Improved Lewis Bolt Header, capacity up to 1 in.
19 Improved Lewis Bolt Header, capacity up to 1 in.

i Improved Lewis 1991.

1½ in.

Several Chapin Headers, light and heavy; Nut
Tappers, a complete assortment: Cold Headers
for Rivets, Store Bolts, &c.; Hot-pressed Nut
Machines, sizes; Washer Machinery, and every
variety of tool used in Bolt and Nut Shops. The
only specialists in line in the United States.

Address

specialists in line is the Address THE NATIONAL MACHINERY CO., Tiffin, O. Catalogues sent free to any address.

Hardware Store for Sale.

In a Manufacturing Town of 10,000 inhabitants, a Hardware Store, established eight years and doing largest business in their line. Stock will inventory \$6000. Will sell all or half interest to right party. Address

"D. O. C.," Office of The Iron Age, \$3 Reade St., New York.

FOR SALE.

Extra Heavy

24-INCH LATHES Strongly geared; also Heavy and Improved 36-inch Planers. Good workmanship and material. Price very low.

B. GRAVES LOUDEN,

B. GRAVES LOUDEN,

Philadelphia.

CORRESPONDENCE IS SOLICITED with parties having

MACHINERY TO BUILD.

Heavy work preferred. THE HARTFORD ENGINEERING CO., Hartford, Conn.

Metal Exchange Memberships

Bought and Sold by
WM. WILLIS MERRILL,
4 Stone Street, Room 69.
Dealer in

EXCHANGE MEMBERSHIPS.

Wanted.

Competent Foreman, to take charge of Boiler Shop. Must thoroughly understand his business To such a man a good place is open. Address

M. GEARY, Manager,

WANTED

buy Burnt Iron of all kinds, in any quantity.

Address MATTHEW GILL, Jr., & CO., 1140 N. o St., Phila

Engineer and Superintendent. Situation wanted by a Civil and Mechanical Engineer—a graduate of an engineering school, who has had large and varied experien to in designing, erecting and operating improved machinery for the manufacture of Crucible and Open Hearth Steel, Gas Furnaces for Heating and Melting, Buildings, Rolls for Special Shapes, &c. Satisfactory references.

"ENGINEER, 78."
Office of The Iron Age, 83 Reade st., New York.

Wanted.

HEAVY CASTINGS AND ROLLS. Wanted to buy Old Heavy Castings and Rolls of

all kinds. Address MATTHEW GILL, JR., & CO., 1240 N. 9th St. (below Thompson St.) Philadelphia.

CORRESPONDENCE SOLICITED

from parties intending to purchase Steam Rivetters, Steam Hammers, Hydraulic Presses. Heavy Punch and Shears, &c., &c.

Estimates given for good work very low. CONTINENTAL IRON WORKS Cor. 23d. St. and Washington Ave., Philadelphia

TO ENGLISH AND CANADIAN MANUFACTURERS.

Wanted. - To arrange with some party to manufacture on royalty, or to buy outright, English Patent No. 4929, for Friction Clutch; also Canadian Patent No. 16,636. Patent No. 16,616.

These patents have been thoroughly proved in America, and are recognized as the standard. We are now doing a profitable business of \$50,000 per annum. Address

D. FRISBIE & Co., 481 N. 5th st., Phila., Pa.

Hardware.

Office of The Iron Age, 83 Reade St., New York.

WANTED.

A position by a young man of 22, with five years'

Liperience in the Hardware Business.

Address.

Address "C. W. C.,"

Address "C. W. C.,"

Office of The Iron Age, 5; Reade St., New York.

Special Notices.

BARGAINS.

30-in. swing, 18 ft. bed, New Haven Lathe.
24-in. swing, 17 ft. bed, Bement, Marshall & Ball
Lathe.
20-in. swing, 17 ft. bed, Perkins Lathe.
16-in. swing, 8 ft. bed, Perkins Lathe.
16-in. swing, 6 ft. bed, Perkins Lathe.
16-in. swing, 6 ft. bed, New Haven Lathe.
13 in. x 9 ft. bed, New Haven Planer.
13-j6 x 24 Horizontal Engine.
13 x 14 Horizontal Engine.
15 x 15 Horizontal Engine.
15 x 15 Horizontal Engine.
15 x 16 Horizontal Engine.
15 x 16 Horizontal Engine.
16 x 17 Horizontal Engine.
17 x 18 Horizontal Engine.
18 x 19 Horizontal Engine.
19 x 10 Horizontal Engine.
19 x 10 Horizontal Engine.
10 x 7 vertical Engine.
10 x 10 Horizontal Engine.
10 x 10 vertical Engine.
10 x 10 verti

30 x 10 tt. Horizontal Boiler. 30 in. x 7 ft. 10 in. Horizontal Boiler.

A large assortment of all styles of Boilers Engines. Belt Jumps. Shafting, &c., &c. Write for prices and tell us what you want. LOVEGROVE & CO., 152 N. Third St., Phila.

Great Bargain.

An old and well-established Piping and Plumbing Bu-ines for sale, in a thriving town in Eastern Massachusetts. A good trade established, with plenty of work on band; employs 12 to 15 hands. In connection with above, a thorough and established Steam Heating Apparatus, for which we have a complete set of Patterns. The town is at present putting in Water Works which will increase business. Address

"P. O. BOX 42," North Attleboro, Mass.

Imported Gas Engine For Sale.

One 15 H. P. imported Otto Gas Engine, in perfect order, and the finest flaished Gas Engine in the country. Can be delivered at once. Inquire of

GILBERT LOOM CO., Worcester, Mass.

Wanted.

An interest in, or to buy, the stock of a Retail Hardware House doing a good business, located in some live, growing place.

Address Office of The Iron Age, 83 Beade st., New York.

An office in John Street; quarters of Steel and Iron Trade. Rent cheap; immediate possession.

Apply to FRANK A. FROMENT, 112 John Street

WANTED.—An experienced Salesman now connected with one of the largest jobbing houses in the West, would like a position with some Hardware or Cutlery Manufacturing House, commencing January 1, 1884. Have an acquaintance with the jobbing and best retail trade through Minnesota, Wisconsin, Illinois, Michigan, Indiana and Iowa. Best of reference from present employers. Address "BUSINESS," Office of The Iron Age, 36 & 38 Clark St., Chicago, Ill.

Wanted.

A first-class Foreman in a Hay and Manure Fork Shop. Must understand the business and come well recommended.

address, by letter only, "FOREMAN," Care of William Young, sr Park Row, New York.

Correspondence Solicited

Oil City, Pa.

Burnt Iron—Grate Bars, Cylinders, &c.,

With manufacturers of first-class Locks and General Hardware, for the sale of their goods in the principal Russian cities, by the subscriber, who has been in business in Moscow for a number of

years.
Address,
Rue Nikolskaia, Maison Tchigeff,
Moscow, Rus

Wanted.

A Partner who can furnish from \$3000 to \$5000 r an interest in a well-established and well-payfor an interest in a wein-established and wein-paying Foundry in Dakota, which is new, running and doing a big business. The cost of fuel is very little above St. Paul rates, and Iron costs on an average 1% cents per pound. The iron can be made into castings for 2 cents, including cost of iron, and will sell for from 2% cents to 6 cents. Reason for wanting partner is that the business is more than can be handled with the present capital. Address

44 M. E. H., 29

Box 1825, Fargo, Dakota.

REDUCTION IN PRICE.

LEIGH'S DISCOUNT BOOK Specially arranged for the use of the

HARDWARE TRADE. Acknowledged by ALL the best work of the kind ever published. Price by mail ONE DOLLAR. E. B. LEIGH. Sec'y The American Brake Co., St. Louis, Mo.

E. BISSELL & CO., Wholesale Hardware Auctioneers

\$3 Chambers and 65 Reads Sts., N. Y. Sales held weekly for the trade. Consignments blicted. We refer to the leading manufacturers

Wanted. A situation as Superintendent or Foreman in a Gray Iron Foundry. Light work preferred. Best of references. "COMPETENT."
Office of The Iron Age, 83 Reade St., New York.

WANTED.—A permanent position as Mechanical Designer and Draughtsman or Superintendent by a Mechanical Engineer of 20 years' experience in all kinds of Machinesy and Boliers. Salary moderate; best references.

Address

Special Notices.

BARGAINS IN SECOND-HAND MACH NERY

The following second-hand Machinery, &c., will be seld cheap for cash or on time with proper security:

security:

ONE ENGINE LATHE, 30 in. swing, 18 ft. bed.
ONE ENGINE LATHE, 20 in. swing, 16 ft. bed.
ONE ENGINE LATHE, 20 in. swing, 8 ft. bed.
ONE ENGINE LATHE, 20 in. swing, 9 ft. bed.
ONE ENGINE LATHE, 10 in. swing, 7 ft. bed.
ONE ENGINE LATHE, 18 in. swing, 21 ft. bed.
ONE ENGINE LATHE, 18 in. swing, 21 ft. bed.
ONE UPRIGHT BOR. AND TURN. MILL, 10 ft.
Alb. swing.

ONE ENGINE LATHE, 18 in. swing, 10 ft. 6 in. Dec. ONE UPRIGHT BOR. AND TURN. MILL, 10 ft. 4 in. swing.
ONE LINCOLN MILLER. PRATT & WHITNEY. TWO HAND MILLERS. PRATT & WHITNEY. TWO HAND MILLERS. PRATT & WHITNEY. ONE PLANER TO PLANE 31 in. x 30 in. x 6 ft. ONE PLANER TO PLANE 34 in. x 30 in. x 10 ft. ONE SHAPER, GOULD'S, 10-in. stroke.
ONE SHAPER, GOULD'S, 10-in. stroke.
ONE SHAPER, GOULD'S, 10-in. stroke.
ONE HAPER OR COMP. PLANER, 10 in. st., 8 ft. 0 in. bed. Trav. Hd., 2 Tables.
ONE HAND LEVER PUNCH.
ONE LOT HEAVY POLISHING FRAMES.
ONE PARTT & WHITNEY 4-SPINDLE DRILL.
ONE GARVIN'S 4-SPINDLE DRILL.
ONE GARVIN'S 4-SPINDLE DRILL.
ONE AND DRILL PRESS.
TWO 10-IN. HAND LATHES. P. & W.
THREE NO. 145 BLISS POWER PUNCHES.
ONE NO. 1 BLISS POWER PRESS. Heavy.
ONE NO. 1 BLISS POWER PRESS. Heavy.
ONE STILES 400-LB. DROP PRESS AND LIFTER.
ONE SQUARE BAR IRON CUTTER.
ONE SQUARE BAR IRON CUTTER.
ONE DOUBLE END POWER FORMING MACHINE, nearly new; suitable for Horse Shoes or similar work. or similar work.

ONE LOT HORSE-SHOE STEEL DIES, cheap.

ONE 48-1N. PATERSON FORGE, complete.

LOT PULLEYS AND HANGERS.

Engines, Boilers, &c.
ONE 8 x 12 PORTABLE ENGINE AND BOILER

ONE 5 % 16 HOR STA. ENGINE AND BOILER.
GOOD AS NEW.
ONE 8 % 12 HORIZONTAL STATIONARY ENGINE.
ONE 10 % 12 STATIONARY ENGINE.
ONE 8 % 12 1 IN STATIONARY ENGINE.
ONE 5 % 12 HORIZONTAL STATIONARY ENGINE.
ONE 5 % 12 HORIZONTAL STATIONARY ENGINE.
ONE 5 % 6 HOR. STA. ENGINE.

GINE.
ONE 5 x 6 HOR. STA. ENGINE.
ONE 10 H. P. VERTICAL ENGINE.
ONE 10 H. P. CYLINDER BOILER.
ONE 10 H. P. UPRIGHT BOILER.
ONE 15 H. P. LOCOMOTIVE BOILER. Nearly

NEW NO. O STEAM PUMP. CAMBRON, ONE ACME STEAM PUMP. NO. O. ONE LOT 13-IN. SMOKE-STACK. Large stock of New Machinery, &c., at extremely low prices. If the list does not contain what you want, write us.

J M. BADGER & CO., 49 Dey Street, New York City.

Valuable Iron Property for Sale.

An Iron Property in Central Pennsylvania on the main line of the Pennsylvania Railroad. Large bodies of Hematite and Fossil Ores, well developed. Modern appliances for the preparation of the Ores. Situated close to the coal seams of the Clearfield, Broad Top and Alleghany Mountains. Coke from Connelisville can be laid down at \$2.35 per ton. A ton of Pig Iron can be made for about \$13 per ton, exclusive of interest on plant. The property has one Charcoal Furnace and Forge, and an abundant supply of Timber for making Charcoal. Satisfactory reason can be given for selling. Apply, for further particulars, to

WM. DORRIS,

Huntingdon, Pa.

For Sale.

CAST IRON HOT-BLAST PIPES-THOMAS

38 Hot-Blast Oven Pipes for Thomas Oven, in first-class order. Price, I cent per ib., cash, at our works. Size, IST. x 9 inches. A bargain. SHOENBERGER, SPEER & CO.,

Hardware Business for Sale.

In one of the most thriving towns of Northern Michigan ; two Railroads ; good farming country. Stock fresh and clean; will invoice about \$5000. Satisfactory reasonable. Address "HARDWARE, 27," Satisfactory reasons given for selling. Terms

Office of The Iron Age, 83 Reade St., New York.

For Sale.

A Good Stove and House Furnishing Business in one of the most thriving cities on the Missouri River is For Sale Cheap, on account of illness of owner. Stock will invoice about (\$4000) four thousand dollars. Address

J. H. MANNY,

No. 84 Lake Street, Chicago, Ill. For Sale.

Leases on two valuable Magnetic Iron Mines, in full working order and supplied with excellent machinery, and capable of producing 60,000 tons ore per annum of as \$ to 60 \$ metallic iron. Office of The Iron Age, 83 Reade st., New York.

Planer For Sale

New Iron Planer, 24 inches x 24 inches x 6 feets made by Whitcomb Mfg. Co. No finer tool in the mark-t. Also Shapers, Drill Presses, Screw Presses and Lathes, large and small.

PEERLESS PUNCH AND SHEAR CO.

38 Dey Street, New York.

For Rent or Sale.

A first class Rolling Will situated between Pennsylvania Railroad and Pennsylvania Canal. Plant consists of two trains of ralls, 18 and 9 inch, in first-class condition. Two heating furnaces and all other machinery pertaining to rolling mills in complete order. For further information, address, HUMMEL, FENDRICH & CO... Harrisburg, Pa.

For Sale.

A well-established and fine paying business in Stoves, Tin and Hardware; also, complete set of Tinners' Tools, in the liveliest city in Texas. Will reduce stock to suit buyer. Good reasons given for wanting to sell SNIDER & VREELAND. Colorado City, Mitchell Co., Texas,

WANTED TO BUY FOR CASH.

A Fancy Hardware and Cutlery Business, with an established cash trade, well located in some large, growing city, east of Chicago, Principals only need address, with full particu-ars, "B. W. N.,"

Office of The Iron Age, 83 Reade st., New York. Situation Wanted.

I Engineer of zo years' experience in chinesy and Bollers. Salary modernces.

"M. E."

130 East Bridge St., Oswego, N. Y.

Office of The Iron Age, 8; Reade st., New York.

Special Notices.

New & Second-Hand Machinery.

H. PRENTISS & CO., 42 Dey St., N.Y.

For Sale.

The Industrial Works of Shamokin, owned and successfully carried on for a number of years by the late Wm. Brown, deceased, consisting of Foundry and Machine Shop, and a large steck of Patterns regarded as part of the property. Boiler Shop, Blacksmith Shop and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. Easy terms of payment are offered to suit a purchaser of limited capital. For list of Tools and further particulars apply to WM. McLivAln & Boins, Manufacturers of Boiler Plate and Tank Iron, Reading, Pa.

For Sale.

BRIDGE AND CAR MACHINERY. Three-in. Bolt Cutter, 14-in. Double Head Automatic Bolt Cutter, 3-in. Nut Tapper, 3-in. Drill Press, Power Funches, Fower Shear, Rotary Planer, Cutting-off Machine, Double Chord Pin Lathe, 11 Forges Bridge-Erecting Tools, Anvils, Swedges, Tong, Button Sets. Hammers, &c.

For particulars, address

8. M. YORK, Cleveland, Ohio, or call on J. L. DOLE. 180 Center St., New York.

For Sale.

A stock of Carriage Hardware in a city of 25,000 inhabitants; the only stock of the kind in the city. Is one of the best shipping points in the State; 6 railroads; has a good class of customers. Stock clean and in good condition. Good reasons given for selling. Address "B.", Office of The Iron Age, 8; Reade st., New York.

Wanted.

OLD MALLEABLE SCRAP. State lowest price, point of delivery and quantity. SITES & GILL.

Dealers in Scrap Iron,

222 and 224 So. Third Street, Philadelphia, Pa. THE SALE OF

Hardware Specialties or other Merchand se suited to New England market—to parties in good credit or for cash—will be attended to by the subscribers. Send price list, with commissions allowed, to B. D. WASHBURN & CO.,

Box 3405, Boston P. O., 36 INCH

PRESSES DRILL

READY FOR DELIVERY.

E. L. HARRINGTON, 426 North 23d Street,

PHILADELPHIA, PA. FOR SALE.

Nos. 2, 3, 6 and 7 Sturtevant Blowers; Nos. 2, 4, 22, 33 and 33 do. Exhausters; No. 2 Root Blower and No. 1 Baker do. (positive pressure); Vertical Engines, 7 x 4 and 2½ x 5; Horizontal do., 1½ x 2½, 3 x 6 and 8 x x0; Planers, 20 x 20 x 5, 30 x 30 x 6 and 6 x 12, with boller. Have you any Blowers, Engi es. Bollers and Machine Tools, &c., to sell or buy? Send exact description to

C. B. BIGELOW, M. E., 18 New Church Street, New York City.

For Sale Cheap. Stationary Engine in complete order, 16 in. x 16 in.; Cylinder Fly Wheel, 16 ft. x 18 in. Call on or address

8. L. MORE & SON, Elizabethport, N. J.

AN OLD AND WELL-ESTABLISHED MANUFACTURING INDUSTRY, ng unequaled water power, located in one of the set healthful and prosperous cities of the West, we enlarging its business, will make room for an terprising business man who can add \$15,000 to 0,000 capital to that already employed.

Address, "DRAWER M.," Appleton, Wis

THE ADVERTISER, having had many years' ex-perience in the Hardware business, and capable of selling goods on the road, or buying, is ouen for an engagement by the set of January. Farties want-ing a competent man will address under Office of The Iron Age, 83 Reade St., New York SITUATION WANTED as Superintendent of a Roll ing Mill. Practical in all its branches; twenty five years' experience; good references given if required.

THOS. O. HAMPTON,

John Elect One-l with (preps Apchaniconta carefi imens approbuilde

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Fr. rent prop by the company of the control of the

Special Notices.

To Brass Foundries. To Brass Manufacturers.

Our new foot press, for cutting off GATES from brass astings by FOOT power, is now ready. Weight, 25 bs. Frice complete, \$30. nes. A boy can operate casily. We warrant them to give the most perfect atisfaction. PRESILESS FUNCH AND SHEAR CO., 38 W. Day Street, New York

For Sale or Lease.

A Large Two-Story Brick Factory,

formerly Macnine Works, at Pearl River, N.Y., on railroad depot, 25 miles from New York City, Railroad facilities unexceptionable, on the line of the New Jersev and New York Railroad. The property contains 40,000 square feet floor space, with one 80 H. P. Engine and Boiler, 700 ft. 3-inch line shafting and pulleys, main belts, steam heating and water pipes throughout the building. A splendid from feundry, 70 ft. by 00 ft., with one iron smelting cupola with Mackenzie blower, brass furnace, core oven, blacksmith shop, pattern vaults, annealing oven, etc. The property can be bought or leased on liberal terms. For further particulars, price, terms, etc., address J. E. B. & Co.,

113 Liberty st., New York City, or Pearl River, Rockland Co., N.Y.

For Sale.

A FIRST-CLASS JOBBING HARDWARE AND TINNERS' STOCK BUSINESS,

located in a Western city. Well established, profitable, capable of large increase. Satisfactory reasons for selling. All or part to be sold; small proportion of cash; balance on long time if prop erly secured. Address, for correspondence or per

"M., C. & C.,"

Office of The Iron Age, 83 Reade st., New York.

For Sale.

The largest stock of New and Second-hand Engines, Boilers, and general Machinery in the West. Send for Catalogue. Hoisting Outfits for Coal Mining and other purposes a specialty.

WARREN SPRINGER 195 to 219 South Canal St., Chicago.

For Sale.

Second-hand

DROPS and LIFTERS

BEECHER & PECK, Lock Box 123, New Haven, Conn

STEAM PUMPS For Sale.

A large number of Steam Pumps of all makes, and ranging in size from small tank or boiler feeds up to very heavy service machines.

While the stock lasts good bargains are open for Miners, Water Works, tholling Mills, Furnaces, or any one needing to move fluids by steam.

Call upon or address

JNO. A. HINCKLEY,

Purchasing Agent of the United Pipe Lines,
Oil City, Pa.

For Sale.

MACHINES FOR MAKING PICKS, MATTOCKS AND AXES,

With Solid Punched or Adze Eyes.

T. & CO., Box 25. Office of The Iron Age, 83 Reade st., New York.

For Sale.

TREBLE AND DOUBLE-GEARED 25-INCH

ENGINE LATHES, from new patterns

> GEORGE A. OHL & CO., East Newark, N. J.

FOR SALE.

The extensive Foundry and Machine Shops formerly owned by Clute Bros., adjoining the Eric Canal, and at the junction of the several railroads centering here, are offered for sale on reasonable terms. On the premises are Engine, Boiler, Cupola, Line Shafting, Steam Heating Pipes, Cranes, Dormant Scales, &c. For further information, address,

H. S. EDWARDS,

For Mohawk National Bank,
Schengerapy, July 24, 1881.

SCHENECTADY, July 24, 1883.

To Lease.

From May 1, 1884, for a term of years, at a low rental to satisfactory parties, the manufacturing property at New London, Conn., lately occupied by the Brown Cotton Gin Company. The ground of mprises over 50 000 square feet. The buildings and shed a under roof measure over 25,000 square feet, of which about 20,000 feet are metal roofs. An Engine, Boiler, Shafting, &c., &c., are on the premises. The property is very conveniently located for m nufacturing purposes. Its entire easterly line is bounded by the land of the Shore Line Division of the N. Y., N. H. and Hartford R. R. Co.

For further particulars, apply to

Messrs. J. C. LEARNED & SON, New London, or to B. HAXTUN, 172 Centre st., New York.

Special Notice.

A Pocket Manual for Engineers. Edited by John W. Hill. M. E. Edition, 10,000. Printed from Electrotype Plates on White No.: Book Paper. One-half stiff Morocco Covers; one-half Cloth, with Cardinal Edges. Will be distributed, postage prepaid, on receive of \$z.:2 each.

A pocket manual of useful information for Mechanical Engineers. Steam Users and Mechanics, containing 244 pages (set it. Nonparell type) of carefully selected data, formulæ and experimental investigations from the latest and most approved sources. Published by WM. A. HARRIS, builder of Harris-Corliss Steam Engines, Providence, R. I., to whom all subscriptions for copies should be sent.

Wanted.

A Partner with \$1000 to \$10,000 in a Foundry and Machine Business, established in 1814. For par ticulars, inquire of

I. W. COLLEB.

Trade Report.

BRITISH IRON AND METAL MARKETS.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, Oct 31, 1888. Scotch Pig.-The market is weaker and quotations have declined still further. Makers' brands are quoted as follows:

Coltness, alongside, Glasgow. Langloan, "Gartsherrie, "Gar Summeriee,
Carnbroe,
Glengarnock,
Eglinton,
Dalmellington,
Shotts, at Leith. Lighterage from Ardrossan to Glasgow is 1/ ?

Cleveland Pig.-The market is weaker f.o.b. shipping ports:

Bessemer Pig-Is weaker. W. C. lots, Nos. 1, 2 and 3, equal parts, f.o.b. shipping ports.

Blooms.—But little doing.

Manufactured iron.-The market is steady. Fears are entertained of a strike among the colliers. We quote at works:

	£	8.	d.	£		В.	d.
Staff. Ord. Marked Bars	7	10	0	00			
" Medium "	6	5	0	0	6	15	0
" Common "	6	0	0	a	6	5	0
Hoops, 20 W. G. and over.				-Ch			
" Common Best	7	0	0	On.	7	. 8	0
" Medium	6	.5	0	a	6	15	0
" Common	6	10	0	a			
Sheets, 20 W. G. and under.			-	40			
" Ordinary Best	R	15	0	@	9	25	0
" Common	8	0		a	R	5	0
Welsh Bars	5	5	0	6	5	5	6

Steel Rails-Are irregular. We quote £4. 15/ @ £5. 10/ for Ordinary Sections, f.o.b. shipping ports.

Iron Rails .- But little demand.

Old Rails .- The market is unchanged. We quote Old Tees £3. 12/6 @ £3. 15/, and Old D. H.'s, £3. 15/@ £3. 17/6, c.i.f. New York.

Scrap.—The market continues quiet. We quote Heavy Wrought, £3. 12/6, c.i.f. New York. Bessemer Crop Ends, run of the mill, are quoted 60/, f.o.b. shipping ports.

Copper.-The market is a little steadier. Selected is quoted at £67 @ £68, and Chili Bars, £61. 10/@ £62.

Tin .- The market is quiet, with prices a little steadier. We quote Straits Ingot, spot, £93. 10/@ £94. 5/, and futures, £93. 5/@

£93. 15/. Tin Plates .- The market is steady. We

Tin Plates, 10 x 14, 1st qual. Charcoal... 19/6 @ 21/6 ad " " ... 18/6 @ 19/6 lst " Coke. ... 17/6 @ 18/2 ad " " ... 16/6 @ 17/ 69 ... 16/6 @ 17/

Spelter.-The market is quiet. We quote Ordinary, at shipping ports, £15. 7/6 @ £15. 10/.

Lead .- Prices are lower. Common English Pig is quoted £11. 17/6 @ £12. 2/6.

Freights.-Steam from Glasgow to New York, 5/ @ 6/; Liverpool to New York, 4.'6 @ 5/; Liverpool to Philadelphia, 5/ @ 6/5, and London to New York, 7/6 @ 9/6.

TRADE AND FINANCE

Office of The Iron Age, WEDNESDAY EVENING, Oct. 31, 1983. The business outlook is of that mixed and uncertain kind which forbids definite predictions of the immediate future. The course of trade this autumn has not equaled expectations, but a solace is found in the advanced to 4914. New York Central admarked steadiness of the commercial fabric and of prices, too, in all legitimate branches, Paul to 97½, Union Pacific to 88¼, Lackawith far exercions posterished and the standard warded to 117, Northwestern to 122½, St. with few exceptions, notwithstanding the wanna to 114%, Northern Pacific common and despite the long-continued succession of Southern to 521/4, St. Paul and Omaha to failures growing out of corrupt, if not in 351/2, Western Union to 781/2, Lake Shore to many cases fraudulent, methods pursued in 98%, Michigan Central to 91%. sustaining an already tottering credit. For The following were the quotations for the moment, the revival of a rampant spirit of speculation is the worst of threatening evils, for with the extraordinarily low prices now ruling for most of the leading staples -93 cents per bushel for wheat in Chicagoand with unusual accumulations of exportable commodities, a speedy improvement in our foreign-trade balance would naturally be looked for. Indeed, exporters within the Bank of this city has taken an important last week have received a more liberal sup-

ment of formidable dimensions. Perhaps the most notable event of the week is the failure in Liverpool, England, of the large cotton firm of Morris Ranger. with liabilities estimated at \$3,750,000, followed by other houses of lesser consequence It is believed in New York that, beyond slight effects in the cotton market, American houses will not be disturbed. The president of the Cotton Exchange this morning concurred in this view. He considers the absence of a marginal clause in the conas making their transactions more risky, while the American system of calling a margin tends to prevent any material loss to

and abroad is against any outward move

individuale The weekly statement of city banks showed a decrease in all the items except circulation The banks lose only \$290,325 in reserve, which places them \$307,550 below the 25 % legal limit. Notwithstanding the recent and the imports \$694,960,036.

they had a surplus reserve of \$1,597,900. It there is unusual activity in speculative cir is a source of satisfaction to know that the cles. On the Produce Exchange alone, the loss results from legitimate demands, large transactions in wheat on a single day covamounts being needed in the South for the ered nearly 11,000,000 bushels, the aggremovement of cotton, while the requirements West and East are not so large. In the coming week the Treasury will disburse freely on account of called bonds and interest. the Stock Exchange, strengthens a more Another early call is thought not improbable. The foreign movement of merchandise at this port during the past week was decidedly unfavorable, the imports being largely in In dry goods many buyers are attracted to excess of the exports, against an excess of the city by important auction sales. The nearly \$500,000 of exports for the corres- October settlements in the jobbing trade exponding week in 1882. The valuation of imports at New York for the week just show that retailers have done well in sales closed amounted to \$9,933.152, of which and collections. Cotton is irregular, being \$7,461,872 represents general merchandise and the remainder dry goods. Since January I the imports aggregate \$382,886,336, compared with \$417,732,729 for the corresponding period of 1882. The imports of specie and prices are lower. We quote as follows, for the week amounted to \$599,843, mostly in gold, and the exports made a total of Middlesboro' No. 1 Foundry. 41/6

" No. 2 " 40/6
" No. 3 " 83/6 89/6" movement of domestic produce at this port during the past week was of fair proportions, the total being \$6,673,379, against \$5,855,520 Hematites are quoted 49/ @ 50/ for mixed for the same week last year. The shipments of breadstuffs and provisions are quite moderate, while petroleum and cotton are moving out about as usual. Since January the exports aggregate \$295,686,371, compared with \$282,203,794 for the corresponding period of 1882. The rates for sterling exchange were reduced, so that gold importations now yield a trifling profit. The posted rates are \$4.82 for 60-day, and inland navigation, but the capacity of the \$4.841/2 for sight. As foreshadowed in these columns last week, there is more disposition in the London and Amsterdam markets to invest in American securities, considerable amounts having gone abroad. Rates for time loans are unchanged; commercial

> paper is dull. Messrs. L. Von Hoffman & Co. have ordered \$1,250,000 gold from London, which will be forwarded to this side during the current week. The bank clearing-house exchanges of this city show a gain of 5.6 %, compared with the corresponding week last year, due to increased activity in stocks. Outside of New York, the returns from 25 leading cities equal those of last year, thus indicating an improvement in the volume of trade, as compared with several months gone. Philadelphia, Cincinnati, Louisville. Providence, Memphis and Lowell all show

decided gains. On the Stock Exchange the activity and excitement of the previous week were renewed, but with more irregularity and a tendency to reaction. Gould and Vanderbilt were both understood to have entered the arena in support of their specialties. Despite the backing thus received, a general weakness became apparent on Friday, the net loss ranging from I to 2 %. Among the exceptions was Canadian Pacific, which advanced from 561/2 to 581/2, on a report, since confirmed, that the Dominion Government had engaged to guarantee its dividends. On Saturday the feature was a sharp advance in Michigan Central, and again in Canadian Pacific, the former for the reason that a large amount of loaned stock was "called in." On Monday and Tuesday the market became heavy. announcement of a heavy cotton failure in Liverpeol, involving other houses there, had a depressing influence. Oregon Transcontinental and Reading both declined, on a report that the pool had been selling. To-day the market exhibited more strength, and at the close several leading stocks were quoted 1/4 @ 13/4 higher than the previous day, the latter Oregon and Transcontinental, which

United States bonds:		
27 C 0	Bid.	Asked.
U. S. 8 per cents	11494	115
U. S. 4s, 1907, coupon	122	1221/4
U. S. Currency 6s, 1895		_
U. S. Currency 6s, 1896		-
U. S. Currency 6s, 1897	134	_
U. S. Currency 6s, 1898	136	
U. S. Currency 6s, 1899	18734	1000

The Importers' and Traders' National step to protect itself against the large ply of orders, but the relation of values here amounts of comparatively worthless mercantile paper which the recent heavy failures have shown to be in existence. Whenever paper is offered to this bank for purchase it addresses a series of inquiries to the makers. asking them to state the amount of their bills payable, amount of their accounts payable, amount of mortgage on real estate and other liabilities. The plan, it is said, will probably be adopted by other banks.

The report of the foreign commerce of the United States for September has just been issued by the Bureau of Statistics, and shows an excess of exports over imports of merchantracts entered into in the Liverpool market disc of \$3,197,052. The total value of the former was \$54,286,903, and of the latter \$51,-089,851. For the three months ended September 30 the exports were \$168,595,204, and months ended September 30 the exports lots. were \$566,803,426, and the imports \$518,-837,223, and for the 12 months ended September 30 the exports were \$812,286,945,

Poughkeepsie, N. Y. | heavy loss, the banks still have \$4,312,000 | The tone of general business is quiet, and integrity, kindly sentiments and generous examined by those who are buying them for

gate being among the largest on record. The increased activity in agricultural staples, as well as an upward tendency in values on hopeful feeling. Ease in money, satisfactory railroad earnings and weakness in foreign exchange are also favorable elements. ceed those of any corresponding month, and somewhat affected by failures in Liverpool. Coffee is firm on a basis of 121/2¢ for fair cargoes. The grain markets are firmer, but less active, except in a speculative way. Corn is dull and lower. Wheat is unsettled—exporters quiet. Provisions are Wheat is unweak, and exporters are slow buyers; mess pork is quoted \$11.50 @ \$11.75. Hides are steady. India rubber is easy and trade dull. Rice is active and higher. Linseed and most other oils are unchanged. Spirits turpentine is lower. Sugar is quiet; refining qualities, 5% ¢ @ 6% ¢. Tea is moderately active and firm. Tobacco is firmly held. Wool is quiet, with prices steady. In ocean freights there is little animation as regards tonnage for cotton or petroleum. Tonnage for grain gets some attention. Miscellaneous freight is crowded forward from all parts of the country, in anticipation of the close of regular steamers is fully equal to demands, from whatever source.

MINING STOCKS.

for mining stocks:

	Bid.	Asked
Aime	_ 11	12
Alice	2.50	8.00
Am. Coal Co	20	
Bechtel		15
Betle Isle		45
Bodie	25	
B., H. & E., new		
Bulwer	50	
B. Pitts		15
Bradshaw	21	
Barcelona	22	
Caled. B. H	30	****
California		83
Climax	4	7
Con. Va	50	
Chrysolite	1.10	1.15
Central Ariz.	15	
	1.00	1.10
Dunkin Decatur	****	28
Eureka Con	22	4.65
Elko Con	V + 0	19
Father de Smet	8.40	-
Green Mountain	71	4.0.00
Gold Stripe	4	****
Hukill	4	0
Horn Silver	6.00	****
Harlem	94	
Hortense	10	14
Iron Silver	2.95	8.00
Lacrosse	7	9
Leadville Con		42
Little Pitts	55	63
Maryland Central	8.00	
Mexican	8.00	
Navajo	3.50	4.00
N. Central Coal	7.00	
Ontario		313
Pipe Line cer	1.0934	1.10
Quicksilver	5.00	6.50
Rappahanock	7	8
Robinson Con	43	5602
Rising Sun		8
Red Elephant	9	
Standard	574	4
	12	1111
	15	14
Sutro Tun	35	10
Union Con	8.60	
	1	
Unadilla	A	

GENERAL HARDWARE.

special mention, the condition of things assets. being substantially the same as at our last report. The sales for the month of October have aggregated a large quantity of goods, though with the ruling prices they may not but in all cases on narrow margins of profit. foot up to the usual amount. Our review of A growing disposition is manifested on the the market touches the principal branches of part of manufacturers who are able comfortthe Hardware trade, and gives the salient ably to hold their goods, to keep them rather points in connection with each. We record than lower the quality or sacrifice on them violent fluctuations in speculative circles, to 29%, Canadian Pacific to 60%, Canada this way first published to the trade. The in these columns of the condition of this description or mention of new goods, to branch of trade has awakened a general which we call attention, will interest dealers, interest in the questions involved, and the and perhaps suggest articles which may be saleable, while it will advise manufacturers this and other lines is being directed to the of what their competitors are doing, and so importance of keeping up the quality of the stimulate invention and enterprise. regret to be called upon to record the death of two persons well-known in Hardware circles, and the financial embarrassment of two houses in this city.

There has been more activity in Nails during the past week than was the case for some time previous-not that the demand is in any way extraordinary, but it is quite good showing a marked improvement since the first of the month. It is observed that the demand for fine 3d, or Lath, Nails never held up so well as it has this season; the dealers have not yet caught up to their orders for them. Export orders for Nails are received is too generally ignored. There are always nearly every day. None of these orders are unscrupulous manufacturers who claim to large, but they come along steadily, and in themselves form quite a feature of the market. Prices continue as previously quoted. While the card is unchanged at \$3, sales are made at \$2.90, with concessions for large

There is nothing new to report in the Barb Wire trade. Prices are still firmly maintained in this section at the combination price of 7% cents per pound in ordinary the imports \$166,712,020; for the nine quantities, but 6 cents to buyers of large

The death, at the age of 76 years, of Horace Whitney, for many years president of the Dover Stamping Company, occurred on the them. The retailer must expose his wares 19th inst. Mr. Whitney, by his inflexible

more cash than at this time last year, when cannot be said to have improved, although impulses, had endeared himself to a large circle of friends and business acquaintances. At a special meeting of the Board of Directors, a few days since, Mr. L. Bacon Foss, who has heretofore held the position of general manager of the company, was elected president.

On Friday last Charles N. Van Doorn, a nember of the well-known Hardware jobbing house of Lockwood, Van Doorn & Taylor, died at his bome in Cleveland, Ohio. He had been engaged for 30 years in the Hardware business, first as a partner in the house of Tennis & Dangler, and then after a few months with Clark, Wilson & Co., of this city, as a member of the firm to which he belonged at the time of his death. He is spoken of as devoted to business and possessing an extraordinary memory of men, of facts and of prices. He had a very general acquaintance among manufacturers and the general trade, who will recall his genial nature, and regret his loss. The house of which he was a member will be continued by the surviving partners specific provision for the misfortune which has happened having been by a wise foresight provided for in the copartnership contract, in which it was stipulated that in case of the death of any partner the survivors should carry on the business, thus protecting the estate of the deceased and preventing interruption of the firm's trade.

The E. M. Boynton Saw and File Company, of No. 80 Beekman street, New York, have become embarrassed, and are endeavoring to obtain an extension. The liabilities are estimated at about \$137,000, and assets \$184 -000, but we are unable on inquiry at the office to get definite information as yet. E. M. Boynton, the president, is reported as saying that the company were only temporarily em The following were the closing quotations barrassed on account of the hard times and the assaults on their credit. The account which he gives is to the effect that his brother, C. W. Boynton, the vice-president, had deposited a certified check for \$5000 on August 29 with the First National Bank of Brooklyn as collateral for anything he might have discounted. The bank, however, instead of using the money for the purpose mentioned, protested on October 2 a note from a Massachusetts house for \$2500 which was indorsed by C. W. Boynton and also by the company, and attached the maker of the note. This was followed by suits against the company by other parties.

We regret also to be called to report another Hardware house in financial difficulties. John F. Lovejoy & H. Ingalls Drake, composing the firm of Lovejoy & Drake, Hardware manufacturers' agents, at No. 101 Reade street, made an assignment Tuesday to James L. Fling, their bookkeeper. Preferences were given to the following firms, for whom they were selling agents, but no accounts were mentioned : Elba Iron and Bolt Company, Pittsburgh; J. H. McMahon & Co., Pittsburgh; Gillespie Tool Company, Pittsburgh; Cronk Hanger Company, Elmira; Bagnall & Loud, Boston; Cleveland Hardware Company; Plymouth (Mass.) Mills, and Lambert & Bishop Wire Fence Company. Lovejoy & Drake began business in the spring of 1882, and have felt of late the effect of the duliness of trade. The immediate cause of the embarrassment is said to be that they were indorsers on paper, which going to protest, they were obliged to make an assignment, for the protection of their creditors. We are not yet able to The trade presents few points that call for ascertain the amount of their liabilities or

> In the Tinware market we cannot report any material improvement since last week. There is a good deal of business being done, attention of manufacturers and dealers in We goods. As enforcing this thought, the following letter, from our esteemed correspondent of last week, will be read with interest ;

To the Editor of The Iron Age.—DEAR SIR: You kindly published my letter last week, referring to the "demoralized condition of the Tinware trade," and supplemented it with some editorial remarks that were very pertinent. With your permission, I would like to add a few words more. must learn, if they have not already done so, that an honest dollar cannot usually be bought for 90 cents; nor can a good, honest article of any kind of manufacture be afforded at the cost of one inferior in quality of material and workmanship. This truism of material and workmanship. make the best, but supply the poorest, They make low prices and low grade goods.

Dealers are tempted by them; the idea of quality is too often left out of the question.

The consequence is, makers of all kinds of goods are forced to a lower standard of quality or to loss of business. Let the dealers demand good ware and be willing to pay fair prices for it, and their wants will be supplied. Prices would, of course, be higher, but purchasers would get the value of their money and be better satisfied. The jobber buys and sells his goods under cover of their wrappings, and does not always dis-cover imperfections. If he is indifferent to them and sells them to the retailer, the latter and his customers must suffer loss on

both expensive and perplexing. There is nothing in the line of housekeeping utensils that delights the housekeeper more than good, bright Tinware, and when it is made service as well as for sale, there is for service as well as for sale, there is nothing better to take its place. It is said that "history repeats itself," and it is to be hoped that ere long the "cheap craze" will have passed, and we shall again return to the more sensible, satisfactory and economical way of making goods with a view to their use and durability.

The Wooden Tackle Blocks which are so well known, and still command the market to a very large extent, are threatened on many sides by the new Iron Blocks that are being made to compete with them. Among other makers of new Iron Blocks, the Cleveland Block Company, Cleveland, Ohio, are energetically introducing the Malleable Iron Tackle Blocks which they are manufacturing under Ford's patents. In competition with the regular Block, the point is made in favor of this Malleable Iron article that the score is made wider, permitting the use of a larger rope in Blocks of a given size, and especial emphasis is laid on the excellence of the Anti-Friction Bushings, as being simple in construction and stronger than the usual Bushings. The manufacturers also claim for these goods that they possess superior strength, that they weigh on the average less than the Wooden Blocks of corresponding strength, and that they are cheaper than Wooden Blocks carrying the same size rope. The following is their list:

MALLEABLE-IRON TACKLE BLOCKS

1	Dimension	ıs.		Pla Bush		Patent Bushing.		
Leth. of Shell.	Size of Sheave.	Diam. of Rope.		Price.	Trade No.	Price.	Trade No.	
4 in.	254×11-16	36	Single. Double. Triple.	\$1.00 2.00 3.00	1 3 5			
5 in.	234x76	56	Single. Double. Triple.	1.85 2.50 8.50	7 9 11	\$2,00 3,80 5,50	8 10 12	
6 in.	3%x1	94	Single. Double. Triple.	1.75 3.00 4.00	18 15 17	2.50 4.55 6.55	14 16 18	
7 in.	4½x1½	34	Single. Double. Triple.	2.10 3.65 4.80	19 21 28	2.95 5.45 7.65	20 22 24	
8 in.	5x11/4	1	Single. Double. Triple.	2.60 4.75 6.00	25 27 29	8.85 6.25 8.55	26 28 30	
9 in.	51/ax15-16	1 1-16	Single. Double. Triple.	8.20 5.25 7.25	31 83 35	3.80 7.00 9.85	32 34 36	
10 in.	634×136	136	Single. Double. Triple	3,70 6,00 8,00	87 89 41	4.20 7.80 10.95	38 40 42	
12 in.	716x116	154	Single. Double. Triple.	4.50 7.50 10 50	43 45 47	5.85 10.00 13.75	44 46 48	
14 in.	894×156	196	Single. Double. Triple.	6.25 10.50 14.00	49 51 58	6.75 19.50 17.50	50 52 54	

The Blocks from 4 inches to 9 inches inclusive are the same score as Wide Mortise Wooden Blocks, and will take the same size of rope, thus allowing the use of rope ½ in. diameter more than given above, if desired.

The discount to the trade on above list is from 40 to 40 and 10 per cent. The Cleveland Block Company have established a New York office at 31 Astor House, where they are represented by Charles A. Post.

The Stanley Works, New Britain, Conn. are energetically prosecuting their new business-the manufacture of a full line of Tacks. Shoe Nails, &c. The premises hitherto occupied by the American Electric Light Company will be devoted exclusively to this The large capacity of these works will enable the company to manufacture on a large scale, and they have already begun to turn out finished Tacks, the machines having been running without intermission since the first week in October. Other machines are being added as fast as they can be turned out. In the manufacture of these goods the company, we are informed, will be the first to make use of the electric light. The high standard of excellence shoulder the Bob can always be adjusted and attained by the Stanley Works in the manufacture of Hinges, Wrought-Iron Butts plated, and, judging by the sample we have and Bolts during the last quarter of a century, and their familiarity with brands and qualities of wrought iron, will be a suf- are as follows: 1 pound, \$2; 2 pounds. ficient guarantee of their ability to turn out Tacks of the best quality and finish.

The Gun trade is quiet in this market. We hear of a good deal of activity in the smaller houses in the interior, but stocks are still good, and orders to dealers here to renew the assortments have not yet to any great extent begun to come in. Prices remain about as

Peck Brothers & Co., of New Haven Conn., and 73 Beekman street, in this city have just issued a new catalogue of their goods, a large volume of nearly 600 pages, finely printed, and fully illustrated with cuts of the large assortment of articles which they offer to the trade. It is a very full and complete exhibit of Brass Goods and Plumbers' Fittings for water, gas and steam, of which these parties are well-known manufacturers. Their last catalogue was published January, 1874, and, contrasted with this volume, indicates the growth of their business in the very large additions that have been made in the articles of their manufacto the Reiher Improved Self-Locking Trantion the prices are given, thus promoting tion will be found in another column. the convenience of purchasers, who thus sheet for list prices.

our readers will readily find in another part cushion for the entire sole of the horse's of this paper, Sargent and Co. illustrate foot. It is made by the Lockie Horse Pad their new and popular Plain Bronze Metal Company, Chicago, Ill.

use. If found defective, a reduction in price will be demanded. This is an every-day experience of tradesmen—one that is in Gold, Bronze and Brass, matching in style, color and finish the House Trimmings of Sargent & Co. These goods are furnished either with lines, as shown in the cuts, or with the highly finished surfaces left entirely plain, as wanted.

Our quotations on Glass we again advance, making them now discount 60 and 20 per cent. Owing to the Pittsburgh strike, Western buyers are coming to Eastern markets, and a good deal of eagerness is manifested in placing orders, parties in some cases duplicating orders, so as to secure what they This makes the demand appear greater than it is in reality. Still, there is scarcity, and some staple sizes are entirely out. One house reports that they have booked more orders the past 10 days than they can fill in a month.

The Clark Tool Company, of which C. E. Jennings & Co., 96 Chambers street, New York, are the sole proprietors, in their catalogue of September offer some new combination sets of Tools and Tool Chests, concerning which a claim is made of the superior quality of the goods. One of these Tool Chests is illustrated in their page advertisement in another part of this paper. They have also recently put on the market a convenient tool of useful size, which they call the Giant Hollow Handle, which contains the following 10 tools, made of Steel, well finished, and claimed to be superior in quality: One Screw-Driver, one Chisel, one Scratch-Awl, one Gimlet, one Gouge one Tack Puller and four Brad-Awls. They are 21/2 inches long and 16 inch shank. The handle is rosewood, 6 inches long, with patent swing top and cam fastening. a convenient article, and should be saleable. Its price is \$12, subject to 25 per cent. discount. The Clark Tool Company's list for combination sets of Tools, including the new goods, is as follows:

Brac	es, No	. 1,	Bra	ce	and	6	E	H	te	ß.,	٠	 					\$24.00
Tool	Case,	No.	. 5,	12	Tool	8.									0	 	18.00
8.6	8.6	6.6		. 18													24,00
6.6	8.6	6.6		17												 	30,00
64	8-6	6.6		17	4.6					į.				-			48.00
6.0	6.6		80	19	4.0												60,00
8.6	6.6	4.6		38													84.00
6.0	66	8.6		42													10.00
66	6.6	6.6		50													15,00
0.0	6.6	6.6		62													24.00
6.6	+ 6	6.6		78													
66	6.6	6.6		26							g.,						
					unt,								o				04.00
The	Giant !	Hai			O Too										 	 	\$12.00

Frederick Malleson, 136 to 144 First street, Broklyn, E. D., N. Y., whose advertisement will be seen in another part of the paper, send us a copy of a supplementary wholesale price list of his manufacture of Snelled Hooks, Leaders, Artificial Flies, &c., to be used in connection with his regular catalogue of Rods, Reels and other specialties in Fishing Tackle, which was issued and noticed in these columns last season. The new list gives a detailed description of the different patterns and numbers of the Fish Hooks employed in connection with single and double gut and gimp, including the well-known styles of Limerick and Kirby Hooks, with the special and finer grades of Harrison's, Alleock's and Milward's-such as "Carlisle." Aberdeen," "Sproat," "Sproat," "Sproat," "Aberdeen," "Sproat," "Sproat," "Aberdeen," "Hooks, and other styles peculiar to the demands of the trade in this line. Gut Casting Lines or Leaders, Trout and Bass Flies, are also enumerated in extensive variety as made by this house.

Our readers have observed in our columns the advertisement of Vajen's Patent Reversible Plumb Bob and the cut which illustrates its construction. It has a hole extending entirely through it, with a reversible tempered Steel Point and Screw Cap, which, being interchangeable, enables the Bob to be suspended from either end. the hole in the center of the Bob affording protection for the point when not in use. It is claimed for this article that by filing the made true. It is made of Brass and Nickel seen, it is of accurate workmanship. There are four sizes, which, with their list prices, \$2.50; 3 pounds, \$3; 4 pounds, \$4, subject to discount to the trade of 25 per cent. It is manufactured by Vajen & New, Indianapolis, Ind.

The Taylor Mfg. Company, New Britain Conn., are putting on the market a new Bell No. 444, of which the following is the list

which is subject to a discount of 25 per	cent. :
Price List of the No. 444 Bell.	
Bells only (5 in.)	
No. A, Bronzed Steel, per dozen No. B, Polished Nickel-plated, per dozen	\$5,00 8.00
Bell Metal (5 in.)	
No. C. Polished, per dozen No. D, "and Nickel-plated, per doz. Handle for No. 444 Bell.	9,00 12,00
No. A. Copal Bronzed Small Plate, per doz No. B. "Medium Name-plate, "No. C. "Medium Name-plate, "Large No. D. Brasa Nickel-plated Small Plate, per	1.75 2.25
No. F, Brass Nickel-plated Medium Name-	8.00
plate, per dozen No. G. Brass Nickel-plated Large Name-	5.00
No. H, Brass Fancy Heavy Bronze Name-	6.00
plate, per dozen	10.00
We would direct the attention of the	trade

We observe that with the illustra- som Lifter, of which an illustrated descrip-

The Lockie Horse Shoe Pad, illustrated are not obliged to consult another book or and advertised in our paper to-day, will attract the attention of dealers. This Pad In their double-page advertisement, which consists of a sole-leather protection and

The Francis T. Witte Hardware Company, III Chambers street, New York, importers of Cutlery and Hardware, are carrying a full stock of August Krauss's French Grindstones

The advertisement of the Delusion Mouse Trap will catch the eye of our readers, who will be amused by the rhyme which so aptly describes its operation.

The attention of the trade is directed to the advertisement of Robert B. Hugunin, Hartford, Conn. It will be perceived that he informs the trade of a reduction in the price of the old style (1877) Window Balances. His new (1883) Sash Balances and Sash Lock are also illustrated in his advertisement.

Bellamy's Pattern Maker's Bench Clamp and Vise, patented October 9, 1883, is offered the trade by Horace F. Sise, 100 Chambers street, New York. This Vise is made especially for makers of wood patterns, but can be used for various other purposes. It is claimed to be the best Vise made for sharpening band and other saws, and can be easily and firmly attached to a bench by two screws only.

A description of the Improved Door Knob made by the Morris Sash Lock Manufacturing Company, Cincinnati, Ohio, will be found on another page.

As will be seen by their advertisement in nother part of the paper, W. & S. Butcher, Sheffield, England, and 135 Duane street, in this city, manufacturers of the "W. Butcher" and "Wade & Butcher" Tools and Cutlery, notify manufacturers and dealers that any persons imitating their trade-marks will be prosecuted. We learn that notice has been served on a party claimed to have infringed their rights. In this line of goods we learn that there has been a satisfactory trade, especially in Edge Tools, for which there has been a fine demand. The alterations in the tariff restrict largely the importation of Files. No changes in price on the other side are to be mentioned.

Within the past few years there has been a marked improvement in the manner in which Hardware goods are put up for market, more attention being given to the appearance of the packages and the convenience of the retailer. This remark is suggested by the fact that the Yale Caster Company have just adopted a new label, which give, not only a cut of the article in the packages but also a full description of it. One of their labels, with illustration, reads in this "Yale Caster, Size 12, manufacwise: tured by the Yale Caster Company, New Haven, Conn.; No. 121, Round Plate, Iron Wheel. John Duer & Sons, Baltimore Md., wholesale agents."

The list of the Hartford Hammer Company has been sent us, and contains the line of goods which they have heretofore made. such as Carpenters' Hammers, Cast-Steel Tack Hammers, Farriers' Hammers, Machinists' Hammers, Elongated Socket and Tapering Eye and Adze-Eye Riveting Ham-To these there is added in this catamers. logue a Blacksmiths' Hand-Hammer, No. 81; Adze-Eye Machinists' Straight-Pane Hammers, Nos. 33 and 35, and Plain Riveting Hammers, Nos. 41, 42, 43 and 44. These Plain Riveting Hammers are forged from Cast Steel, but of the ordinary form without the elongated socket. The complete list and discounts are as follows:

Brig	ht Adze-1	Eye Nail	Hamme	rs.
Nos Weights List	. 1. . 736 oz. . \$5.00	2. 13 og. 6.00	3. 1 fb. 7.00	1 D. 4 oz. 8.00
Bright	Adze-Eye	Bell-Fac	e Hamn	ners.
Nos Weights List	11. 716 oz. \$5.00	12. 13 oz. 6.00	18. 1 lb. 7.00	14. 1 lb. 4 oz. 8.00
" Workman				
	Adze-Eye	Nail Han	mers.	
Nos Weights List	1. 716 oz. \$5.00	2. 13 oz. 6.00	3. 1 lb. 7.00	1 lb. 4 oz. 8.00
	ze-Eye Be			
Nos Weights List	11. 716 oz. 85.00	12, 13 oz. 6,00	18. 1 lb. 7.00	14. 1 lb. 4 oz. 8.00
Standard Co				
No. 116, weig	Tack .	Hammers	i.	
No. 100, weig	ht, 4 oz 4 oz	Adze-Eye	rice per	doz., \$8.75 4.50
Img	proved Fo	urriers' L	Hammer	g.,
Ho	rse-Shoe I	Driving H	ammers	
No. 71, weigh	t, 916 oz			.List, \$7.00
No 61, weigh	t 2 lbs			

	Adze-Eye Machinists' Ball-Pane Hammers.
,	Nos 21 22 28 24 25 26 Weights, 4 oz. 8 oz. 12 oz. 1 lb. 1 lb. 4 oz. 1 lb. 12 oz.
١,	List\$8.00 9.00 10.00 11.00 12.00 14.00
5.	Adze-Eye Machinists' Straight-Pane Hammers.
;	Nos
	Weights,
0	Adze-Eye Riveting Hammers.
0	Nos 51 52 58 54 55 Weights 4 oz. 8 oz. 12 oz. 16 oz. 20 oz.
3	List \$5.00 6.00 7.00 8.00 9.00
)	Plain Riveting Hammers.
	Nos 41 42 48 44
5	Weights, 4 oz. 8 oz. 12 oz. 1 lb.
	List \$3.50 3.75 4.50 5.00 <i>Hickory Adze-Eye Handles</i> .
5	Inches 18 14 15 16 17 18 Per doz\$0.50 .55 .60 .70 .80 .90
١	A discount of 20 per cent. is made from
	the above list on Adze-Eye Nail Hammers,
1	and a discount of 25 per cent. on Adze-Eye
	Machinists', Riveting and Farriers' Hammers.
3	In this line of Hammers we are informed
5	that there is a growing export trade.

The following is the list of Hammers and Sledges manufactured by Henry W. Kip Buffalo, N. Y., which, it will be perceived, offers the trade some new goods in the line of Sledges and Heavy Hammers. Changes also have been made in the former list :

Solid Cast-Steel Adze-Eye Nail Hammers

Adze-Eue Bell-Face Hammers. No. 1, 1 lb. 8 oz per dozen, \$8.00
" 1½, 1 lb. " 7.00
" 2, 12 oz " 6.00
" 3, 7 oz " 5.00 Farriers' Hammers. Adze-Eye, 9 oz.....per dozen, \$6.00 Buffalo or Boston pattern, 10 oz... 7.00 Solid Cast-Steel Plain Joiners' Hammers. 1 (Box), 1 lb . 2 oz ... per dozen, \$5.00 1½, 15 oz ... 4.50 2 12 oz ... 4.25 3 (Brad), 7 oz ... 4.00 Joiners' Bell-Face Hammers. Their lists and discounts are given below: Solid Cast-Steel Riveting Hammers. 1, 1 " 2, 12 oz . 3, 7 " 4, 4 " $\frac{3.75}{3.50}$ Blacksmiths' Hand Hammers, Solid Cast-Steel Machinists' Ball Pane Hammers.

No. 00, 8 lb. 6 oz. per dozen, \$16.00 " 0, 2 " 4 " 14.00 " 14.00 " 1, 1 " 14 " 12.00 " 12.00 " 12.00 " 11.00 " Engineers' Hammers. Solid Cast-Steel Machinists' Chipping Hammers

Cast Steel A. E. Nail Hammer. (Not Warranted.) No. 20..... Mallery's Patent Horse Shoe Fitting Hammer. — Solid Cast-Steel Blacksmiths' Sledge. No. 6, Cross or Straight Pane, 6 to 30 lbs. per lb. 30c Solid Cast-Steel Stone Sledge. No. 7, 6 to 30 lbs.....per lb. 30c Solid Cast-Steel Striking Sledge. per lb., 20c

No. 9, 5 to 10 lbs....per lb., 32c Solid Cast-Steel Stone Ax. No. 10, weight as required......per lb., 40c Solid Cast-Steel Masons' Hammer. No. 11, 8 to 8 lbs.....per lb., 40c
Solid Cast-Steel Spalling H mmers. No. 12, Face and Pane, 9 to 20 lbs per lb., 30c Solid Cast-Steel Blacksmiths' Hand Hammer. No. 15, 2 to 5 lbs.....per lb. 40c
Striking Hammer. No. 16, 2 to 5 lbs... Solid Cast-Steel Napping Hammer.

No. 16, 2 to 5 lbs.....

Solid Cast-Steel Wood Choppers' Maul. No. 18, 6 to 16 lbs.....per lt Solid Cast-Steel Railroad Track Chieel. No. 22, Solid Cast Steel, 4 to 8 lbs.....per lb. 42c Wood Choppers' Wedge. No. 23 (Lake Superior Pattern), Solid Cast Steel, Coal Wedge. No. 24, Solid Cast Steel, net.....

Stone Wedge

No. 25, Solid Cast Steel, per lb.... The discounts on these goods are as follows:
Adze-Eye and Joiners' Hammers.
Farriers' and Riveting Hammers.
Blacksmiths' Hand Hammers.
Blacksmiths' Hand Hammers.
Sledges, Mauls and Chisels.
Wedges, Masons' Spalling.
Napping and Stone Hammers.

Terms, 60 days; 2% cash in 10 days. Goods f.o.b. cars at Buffalo. We would call the attention of our readers to the advertisement of the Biddle Hardtwo travelers acquainted with the near trade; also two for the Southern States.

40 1

is finely printed, and indicates the many

The advertisement of Griffin's Improved Hack Saw, which will be found in another column, was omitted by mistake from our observe, is secured by two pins, which may be readily detached, the tension being regublades, which are very highly tempered, are was formerly paid for filing them. The following is the list of the Frames complete, and of the Blades separate:

Frames Complete, with One Dozen Blades. Extra Hack Saw Blades. ... \$7.00 7.50 8.00 8.50 9.00 Inch..... Per gross. Discount, 20 and 10 per cent.

The Payson Manufacturing Company, Chicago, have made a change in their Eastern agencies, as indicated in the following communication, which they have sent to us for publication :

CHICAGO, October 25, 1888. To the Hardware Trade: We have appointed as our Eastern agent Mr. H. J. Brainerd, who will hereafter carry a stock of our goods at 110 Pearl street, New York City, thus enabling you to obtain them much more promptly than in the past. Having withdrawn our agency from Nashua Lock

Company, Boston, and Graham & Haines, New York, we shall combine the stocks in their hands at the new office on Pearl street, and handle all Eastern business from there.

The growing demand for our specialties has made this step necessary, and we feel that all your wants will be carefully attended to by Mr. Brainerd in future, and at factory prices. Terms, 30 days, or 3 per cent. off for cash in 10 days. Lists and discounts given below. Respectfully,

THE PAYSON MANUFACTURING COMPANY.

Payson's "Perfect" Burglar-Proof Sash Locks 0. Small Size, Bronzed Iron, without Spring. \$1.25
3. Small Size, Real Bronze, Ornamental, with Snap.
3½, Small Size, Real Bronze, Black Inlaid, with Snap.
19. Common Size, Bronzed Iron, Bronze Knob, with Spring Bolt.
7. Common Size, Bronzed Iron, Real Bronze Arm, with Spring Bolt.
10.00
20. Common Size, Plain Nickel Plated, all Brass, with Spring Bolt.
21. Common Size, Real Bronze, Plain, with Spring Bolt.
22. Common Size, Real Bronze, Plain, with Spring Bolt.
23. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
24. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
25. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
26. Double Size, Real Bronze, Plain, with Spring Bolt.
27. Double Size, Real Bronze, Plain, with Spring Bolt.
28. Double Size, Real Bronze, Black Inlaid, with Spring Bolt.
29. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
29. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, with Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real Bronze, Black Inlaid, Spring Bolt.
20. Common Size, Real

Patent Refrigerator Latches.

No.	Large Size.	Per o	loz. crews,
95, Bronzed Iron, 96, Real Bronze, I 97, Nickel Plated o	Plain		\$8.00 \$4.00 30.00
	Medium Size.		
Bolt 91. Real Bronze, 91.4, ""	Ornamental, with Ornamental Black Inlaid Plain on Brass, Plain cent.		6.00 18.00 18.00 18.00 22.00
Dannon's Do	Anna Amad Bladedto	Chuckens	

No.

No. ..

No.

T. date

cata

days

notic Catal 8, An 8, An doz 9, An 8, An 10, A 10, A

198	0	\$7.50 \$15.00		punod			_
190	848	86.50	:	:	:	:	
<u>8</u>	255	8:38	:	:	:	:	
186	99	\$1.15	1.15		98		
184	19,8	\$0.85	28.	.83	1.73	5.00	5 50
18	19%	\$0.80	8.	8.	1.50	4.00	4.50
182	13%	\$0.75	15	19	1.35	3.00	3.50
181	-			:		\$2.00	
Number of Caster	Diameter of Wheel, inches	Bronzed Iron, Iron Wheel, per	Bronzed Iron, Lignumvitæ Wheel, per	Bronzed Iron, Porcelain Wheel, per	Bronzed Iron, Brass Wheel, per set.	Polished Brass, per set	Polished Brass. Hard Rubber Wheel

Made in 70 styles. Discount, 45 per cent.

Charles Churchill & Co., 21 Cross street, Finsbury, London, E. C., England, have sent us a volume of very unusual interest, as ware Company, Philadelphia, which is found exhibiting the progress that is making in the among our "Special Notices." They desire export of American manufactures in the line of Machinery and Tools. It is a large folio of more than 200 pages, published in Lon-We are in receipt of the catalogue of the don, containing a large assortment of Ma-Dover Stamping Company, Boston, Mass., chines, Edge Tools, and various implements manufacturers and dealers in Tinners' Hard- which are adapted to and find a market in ware and Furnishing Goods. Besides the England, all of which are of American usual line of Tinware, it exhibits a variety of make, with the single exception of a Gas other articles, such as Wire Goods, Coal Engine, which is manufactured in England, Hods, the Dover Egg Beater, Carpet but in which American capital is interested. Sweepers, Tinsmiths' Tools and Machines, This edition (October, 1883) contains 60 Their catalogue, in separate pamphlet, pages more matter than the last, the conof Painted, Japanned and Enameled Wares tinued and increasing demand for American Machinery and Tools of a high class and sustyles they manufacture of Tea Trays, perior workmanship, as we are informed in the preface, having compelled this enlargement of the catalogue. Among the new machines which are illustrated and priced in this list they mention Wood-Working Machinery, last issue. The blade, as our readers will Grinding Machines, Drilling Machines, Cutoff Machines, Bolt Screwing Machines, new Foot-Power Lathes, Wood-Working Malated by a lever in the open handle. The chines and Meat-Cutting Machines. This catalogue, thus enlarged, comprises such furnished, it is said, at a lower price than goods as these: Planers, Milling Machines. Grinding Machines, Bolt-Cutting Machines, Tinsmiths' Machines; Parker's, Hall's and Stephens's Vises (spelt with a "c"), Lathes, Band Saws and other Sawing Machines Stocks and Dies, Drills, Drill Chucks, Steel Inch........ 6 7 8 9 10 Stocks and Dies, Drills, Drill Chucks, Steel Per doz......\$14.00 15.00 16.00 17.00 18.00 Rules, Squares, Calipers, Planes, Drawing Knives, Augers and Bitts, Hand Saws, Chisels, Files, Shears and Scissors, Rules, and not a few articles of more general use, such as Fluters, Coffee Mills, Lawn Sprinklers, Lawn Mowers, Pumps, Garden Tools, Letter Files, Shelf Brackets, Egg Beaters, Clocks, and some Agricultural Implements. Among the goods so feeding on a foreign market are those made by these manufacturers, for whom Charles Churchill & Co are agents :

American Machine Company.
American Watch Tool Company.
G. W. & H. S. Bartholomew,
W. F. & J. Barnes. Betts Machine Company.

Boynton & Plummer. Brown & Sharpe Mfg. Company. Charles Parker Company. William Coupe & Co.
A. F. Cushman.
Darling, Brown & Sharpe.
Henry Disston & Sons. Enterprise Mfg. Company. Goulds Mfg Company. Hendey Machine Company olland & Thompson. Horton & Son Company. E. Horton & Son Company. Hurlbut & Rogers. Interchangeable Tool Company. C. E. Jennings, & Co. Lowell Wrench Company. Millers Falls Company.
Morse Twist Drill Machine Company. Oneida Steam Engine Company. Peck, Stow & Wilcox Company. ratt & Whitney Company. F. E. Reed, Rollstone Machine Company. D. Saunders' Sons. Seneca Mfg. Company. Stanley Rule and Level Company. I. E. Starrett. L. E. Starrett. Stephens' Vice Company. Sweetland Chuck Company. Trump Bros. Machine Company. Union Stone Company. Wiley & Russell Mfg. Company. Wilcox & Howe, Birmingham, Conn.

manufacturers of Carriage Hardware, have recently added these goods to their list, which, with the illustrations, make pages 137 and 138 of their catalogue : Park Steps

							Per	doz.	pairs
		8		inches,	Norway	Iron			\$8.00
			X 4	+6	T) - 0 3	44			
		3	x 85%	44	Refined	65			6.00
	2,	81/2			-				0.00
			L	arkin's	Square	Step	38.		
0.	1.	3	x 816	inches,	Norway	Iron			
1		316		66	14	4.5			
		8	x 816	66	Refined	6.6			6,00
	2,	856	X4	0.6		00			6.50
			I	arkin's	Round	Step	18.		
n.	1.	416	inche	s diame	ter, Nor	wav	Iron		\$11.00
,	2.		0.6	0.0	91	-	5.6		12.00
,	3,	6	6.6	6-6	44		6-6		24.00
	1,	436	6.6	6.6	Refl	ned	6.6		9.00
	2,	5	44	4.5	44		64		10.00
			D	iamond	Round	Step	08.		
3	1.	416	inche	s diame	ter, Nor	way	Iron		311.00
	0	5	66	8.0	64		8.5		12.00
		434	6.6	w6	Refl	ned	4.6		9.00
	2	5	6.6	6.6	6.6		6.		10.00

The following is their sheet of discounts, dated November 1, 1883, the list referred to being, unless otherwise stated, that of their catalogue of 1881. Terms, net cash, 30 days. Prices subject to change without

Catalogue page	Dis. per cent.
8 Anti-Rattlers.	"Stuart & Wallace's "50
8. Anti-Rattlers,	
	net
O toti Dottlow	"Ladd's," with Tie-Bar60
S. Anti-Rattiers,	Land S, With Tie-Date
8, Anti-Rattier 1	ongs
10, Anti-Rattiers	Fifth wheel
10, Apron Hooks	and Rings 10 ners, "Thomas & Parker's" 40 "Littlejohn's" 20&5
10, Apron Faster	ers, "Thomas & Parker's "40
11,	" Littlejohn's "20&5
11. 44	"Snell's"40&5
12. Bands, Malle	"Snell's"
deep	able "Rim," 2 inch and larger,
12. Bands, Malle	able "Rim," 2 inch and larger,
"Bell," "X. C	
13. Bands, Malle	able "Rockaway," 10 per cent.
discount, Gold	
13. Hands, "Silve	er," "Oroide" and "Brass,"55
14 " " Expr	eka "and "Cinn. Rim." "Gold." 50
14. " "Silv	er," "Oroide" and "Brass,"
ditto	
15. Bands. " Hub	o" and "Sand,"
15 Band Setters.	"Improved,"
16 Rody Loops	"Improved." 90
16	Single Lin " for 14 or 5-16 Bolt
non don 904	Single Lip, for 74 or 5-16 Bott,
Per doz., out	"Single Lip," for % Bolt, per
Body Loops,	smile rab, for 38 pont ber
doz., 90¢	
Ir, Bolts, "Sprii	ng Bar,"50&10 lelphia Carriage and Tire "Nor-
18, " Philac	leipnia Carriage and Tire "Nor-
18, Bolts, Tire, a	good article80

15, Dulin, Life, is good article
19, " Fancy Head, warranted "Norway,"5
19, " T-Head Shaft, "5
37, " Shackle, Milled
30, " Whiffletree, "Spur" Pattern, \$1.00 per
dozne
21, Boits, Whimetree, Bent Pattern, Round
or Square, per dos., 55¢ne
22, Braces, Concealed Top
23, " "Plain,"
109, Brads, new list, Sept. 2, 1882
23, Buffers, Rubber Spring
23, Buttons, Tufting
24 Champa It Dogmon's 12
24, Clamps, "Pearson's"
24. Eagle, Hat 12 m., \$10
25, Clips, Norway, 14 and 5-16
26, 4 " \$6, 50 and 5; 7-16 35&
26, 4 4 Spring Bar
26, " Short Spring40&
27, Clips, Norway, Superior, No. 7, 50 per cent.;
rest of list
97 Ciling Doffmad Supportor 7061
27, Clips, Refined, Superior
20, Brewster Saddre, E. & M. B
20, " "Solid"
29, Clips, Brewster Saddle, "Two-Piece," \$1.20
per doz. sets

per doz. sets	5
30, Clips, Buggy Saddle, \$1.30 per dog. sets	5
30, Clips, Buggy Saddle, without Top Plates, \$1.05	
doz. sets	5
31, Clip Yokes, "Eagle"333	6
31. Clip Yokes, Wrought Iron, 5-16 and 1/4 hole, ?	
cents per lbne	31
31, Clip Yokes, Wrought Iron, 14-in. hole	5
31. " Nos. 2 and 43	8
32, Corner Irons, Body Top, 14, 5-16 and 34 in., 75	
cents per doz. setsne	10
32. Corner Irons, Body Top, 7-16. 80 cents; 1/4 in.,	
85 cents per doz. setsne	t !
32, Body Top Irons, Straight Pieces	0
2) Corner from Rody Bottom list at 75 cents 6	n l

32, Corner frons, Body Bottom, list at 75 cents60
33, Couplings, "Raymond & Lantz"50
34 to 36, Couplings, "Shaft," "Wilcox's" 60&10
33 to 38, Couplings, Pole, also Parts, Pole and
Shaft Eyes
37. Coupling Bolts50&5
38, Couplings, Platform Spring
Side Bar, "Whitney"
40. Couplings, Side Bar, "Brewster," list 11/4
Black, \$8; 11/6 Black, \$8.50
11. Coupling Jacks
11, Couplings, Whiffletree
12 and 48, Couplings, Whiffletree, Double Lock
and Champion, \$1.15 per doznet
45. Curtain Frames, Nos. 5, 16 and 32net
Curtain Frames, No. 83, Silver, \$3.75; Japan,

log	· · · RESE
Curtain Frames, Nos. 6, 17, 31 and 42, 80 c	ents
per dos	
Curtain Frames, "Excelsior," Nos. 1, 4,	3, 10
and 16	20
Curtain Frames, "Excelsior," Rest of list	40
" Leather Covered,"	95
" Snaps and Eyes	90
" Loops and Buckles	

0, **	Knobs, Single Screw .50; Double, .53,	
Riveting	. 38 per gross net	
0. Curtair	Knobs, Concave and Button Rivet,	
	nd Button Screw50	
0. Curtair	Knobs, Silver, Nos. 2, 8 and 17520	
0	"Japanned," Nos. 2 and 8.40&5	
	Knob Patch Fasteners, list No. 4, \$245	
	Patches for Wagons, Bright Screw	
	. 1, \$8.00; No. 2, \$3.50	
	Patches for Wagons, Japanned Screw	
	. 1, \$3.20; No. 2, \$8.75	
	Knob Patch Punches45	

tain Knobs, Silver, Nos. 2, 8 and 175 20	pound. No charge for extra squares on Cincin.
" Japanned," Nos. 2 and 8.40&5	nati. Ohio or Brewster Fifth Wheels. On all other
tain Knob Patch Fasteners, list No. 4, \$245	kinds, 50 cents per dozen extra for extra square on
Patches for Wagons, Bright Screw	% and %. 75 cents per dozen extra on %. \$1 per
No. 1, \$3.00; No. 2, \$3.50	
tain Patches for Wagons, Japanned Screw	dozen extra on 1 inch Fifth Wheels. Wheels, with
No. 1, \$3.20; No. 2, \$3.75	rod to Axle-Bed, \$2 per dozen extra. Brewster
ain Knob Patch Punches	Wheels, with Derby Top \$2 per dozen extra. Wil-
nes, "Peter's Leather,"50&10	cox's Improved Interchangeable Bolts, for Brew.
Frames, net, 1/4 dozen or over	
Molding	ster Fifth Wheels, 36 cents per dozen. Regular
Feet	sizes and kinds of Fifth Wheels we make in large
Collars and Rods50	quantities and have more or less in stock. Where

a variety of sizes are wanted in one order, the order should be placed one to two months in advance of wants. Our Brewster Wheels are full polished. Unless otherwise ordered, lugs on No. 12 are bent, and are 4 inches apart on 12 inch diameter, 5 inches apart on 14 inch diameter. The regular length of flat part of Clip is 2 inches for % and 11-16 iron, 21/4 for % iron, 3% for % iron. An extra charge of 25 cents to \$1, according to size of order, will be made for special or irregular length of Clip. We do not solicit small orders for special Fifth Wheels, as they are unprofitable, and we only fill such orders at our convenience, as a favor to customers. Terms, net cash in 30 days. Goods delivered f.o.b. in Birmingham. No charge for packages or cart The following is the revised price list and

121, " "Excelsior,"
36, Rubbers, Shaft.
76, Saddle Reeds, No. 5, 70 cents; No. 6, 75 cents
No. 7, \$1.00; No. 8, \$1.85
83, Shaft Eyes.
83, Slat Irons, "Bidwell's,"
84, " " "New Haven,"
85, " "New York,"
86, and 87, Slat Irons, "Philadelphia," "Norway,
86 and 87, Slat Irons, "Philadelphia," "Norway,
86 and 87, Slat Irons, "Philadelphia," "Norway,
86 and 87, Slat Irons, "Philadelphia," "Norway,

\$1.75; No. 3, \$2.65.

104, Steps, Stide Spring and Side Bar.

105, N. B.—As Side Bar Steps answer same purpose, we do not make Step represented on page 105.

107, Steps, Rubber Covered, see new list.

108, Serews, new list Sept. 2, 1832.

109, Tacks, new list Sept. 2, 1832.

100, Tacks, new list Sept. 2, 1832.

100, Tacks, new list Sept. 2, 1832.

100, Tacks, new list Sept. 3, 1832.

101, Tacks, new list Sept. 3, 1832.

102, Tacks, new list Sept. 3, 1832.

103, Tacks, new list Sept. 3, 1832.

104, Tacks, new list Sept. 3, 1832.

105, Tacks, new list Sept. 3, 1832.

106, Tacks, new list Sept. 3, 1832.

107, Tacks, new list Sept. 3, 1832.

108, Tacks, new list Sept. 3, 1832.

109, Tacks, new list Sept. 3, 1832.

100, Tacks, new list Sept. 3, 1832.

100, Tacks, new list Sept. 3, 1832.

100, Tacks, new list Sept. 3, 1

" "Whimetree"
Tire Benders, "Killam's"
and 117, Top Props, "Bradley's" Silver

Nuts. 50 116 and 117, Top Props, "Brndley's" Gold Nuts. 55 116 and 117, Top Props, "Bradley's" Leather Nuts. 60

Excelsior"
Top Prop Nuts, Silver and Japanned
Top Prop Block, Rubber.
Washers, "Rubber," Prop Block
"Top Prop," Sole Leather
"Prop Block,"
"Leather" Axie, 25s in. and under.

We give below their net prices per doz.

for Fifth Wheels, as given in their Septem-

6 cents per lb. 5. Washers, Iron, "Thin," 4. Whiffletree Hooks, "Griggs," Japan 4. Silver

ide 115, Wiffletree Hooks, "Premium Spring, 127, Whip Sockets, Nos. 7 to 17 127 to 131, Whip Sockets, Nos. 18 to 5334 132, Whip Sockets, Nos. 56 to 59 132, " Nos. 60 to 68 133, " Nos. 71 to 78 134 to 134, Whip Sockets, Nos. 102 to 178.

ber circular and referred to above :

Derby, No. 1.
Derby, No. 2.
Cincinnati, No. 3.
Ohio, No. 4.
Ohio, No. 4.
Larkins, No. 5.
Larkins, No. 6.
Larkins, No. 7.
Derby, No. 8.
Cincinnati, No. 8.
Derby, No. 94.
Cincinnati, No. 10.
Cincinnati, No. 14.
Cincinnati, No. 15.
Brewster, No. 15.

Cincinnati, No. 15.
Brewster, No. 11.
Brewster, No. 11½.
Brewster, No. 11½.
Brewster, No. 12.
Full Circles, No. 13,
14, 15 or 16 in. dia.
Half-Round Iron.
Plain Tops.
"Ditto" Derby Tops.

" larger than 21/4...

nium Spring."

9-16 & 11-16 % 3%

1 | 11/6 | 11/4 | 11/6 | 11/6

14 to 40 inches diameter, without Clips, 5 cents per

ozen pairs. Seat Scrolls and Back Stays.

66

86 and 87, " "

et).... Nuts, discount, 6 cents per lb.

5. Joint Ends, Short, 20 cents per set, 6 sets in a box. 50.610
6. Joints, Stump, No. 3 50.610
7. "No. 1 35.65
8. King Bolts, "Plain," Nos. 1 and 2, \$1.25; No. 8. \$1.85; No. 4, \$82.25 per doz. 52. 8. King Bolts, "Patent," Nos. 1 and 2, \$2.15; No. 8, \$2.70; No. 4, \$4 per doz. 50. King Bolts, "Finished," add 40 cents per doz. 50. King Bolts, "Finished," add 40 cents per doz. 50. King Bolt without Collar, same price as with. 50. King Bolt Yokes, "Plain". 40.65
70. King Bolt Ties, No. 1, \$8; No. 2, \$3.50 per doz. 570. King Bolt Yokes and Braces. 40.65
71. King Bolt Ties, No. 1, \$8; No. 2, \$3.50 per doz. 571. King Bolt Yokes and Braces. 40.65
72. **Allocks, "French". 1074. Locks, "French". 1074. Locks, "French". 1074. Locks, "French". 1074. Locks, "French". 1074. Martingale Rings. 40.65
76. **Martingale Rings. 40.65
76. **Martingale Rings. 40.65
77. **Martingale Rings. 40.65
78. **Martingale Rings. 40.65
79. **Martingale Rings. discounts of the Rubber Step Manufacturing Company's Rubber-Covered Carriage Steps, for sale by Wilcox & Howe, Birmingham, Conn. They call particular attention to the reduced prices of Nos. 1, 2 and 3 Steps of all

	Patterns.	Impro Construc Per doz. 1	ction.
84.5060 Silver, 10 66; 14 	Star, Channel, Plain, Diamond, Horse Shoe, Clover Leaf, Double Star.	\$9.00 9.00 18.00	Dis. 30 % 80 % 30 %
5 4.—436 x 5, 5 5.—5 x 536, 6.—536 x 6, 7.—6 x 7, 8.—636 x 8,	Star, Channel, Panel, Diamond.	\$18.00 22,00 25,00 30,00 38,00	25 x 25 x 25 x 25 x
30 1.—3 x 3½. 55&10 2.—3½ x 4, 45 3.—4 x 4½,	Panel.	\$10.00 10.00 14.00	30 ≰ 80 ≴ 80 ≴
net 80UND.	Star, Pane	$\left\{\begin{array}{c} \$12.00 \\ 15.00 \\ 18.00 \end{array}\right.$	30 g 30 g 80 g
25 3346 ata; 10 50 55&10 50 15716 x 81	nond,	\$27,00 32,00 36,00 40,00	20 % 20 % 20 % 20 %
50&10 OVAL. way," 55&10 16.—51\(x 7, \) ined," 17.—6 x 8, 60&10 18.—7 x 9,65 Fies20	Diamond.	\$27.00 32.00 40.00	90 x 20 x 20 x

Terms, net cash 30 days.

IRON.

American Pig.-More transactions and more inquiries are reported than usual, and there is a slightly better feeling manifested throughout the trade. There is at the same time a much less pressure to sell than there was but a short time ago. Furnace agents unite in asserting that they are now selling and delivering more than their furnaces are making. Stock sheets have been exhibited which show that this statement is true, and that stocks are being seriously cut into. Desirable brands are becoming scarce, and it is not unusual for the furnaces producing such Irons to be unable to make deliveries in the time desired. Yet the movement is mainly of small lots-carload, 25 or 50-ton lots-and the aggregate business would have been considered quite limited a few months ago. Possibly the increased demand may be only a seasonable movement in anticipation of the closing of navigation, but dealers are hopeful that it will continue. In this way the curtailment of production is at last beginning to be felt. The absence of urgent sellers, the diminution of stocks, the occasional inability to fill an immediate order. and, above all, a palpable steadiness of prices. are symptoms of a sufficient restriction of production. This restriction of production may, however, only be temporarily sufficient, as, if Merchant Iron rolling mills and Steel works shut down to any extent, it will be necessary for Pig Iron producers to go considerably further in the work of curtailing their output. We continue to quote No. 1 Foundry at \$20.50 @ \$21, with sales of choice brands at various prices up to \$23; No. 2 Foundry, \$19 @ \$20; Gray Forge, \$18 @ \$19. Inferior brands can be had at slightly lower prices.

Foreign Pig.-A slightly improved feeling is perceptible, as a result of more inquiry and some sales. Such sales as have day noon of this week : been made are small, however, and the buy Eglinton, \$20.50 @ \$21 to arrive. We 12.00 18.00 Eglinton, \$20.50 @ \$21 to arrive. We 12.00 18.00 hear of no transactions in Bessemer or 13.00 18.00 in Middlesboro' Pig. There is some inwere no dealings in Iron. We have received

learn of any actual business occurring.

stra. Brewster transfer with the structural and Shaped Iron.—There is still a fair demand for building purposes, but it will, of course, fall off as the season advances. We quote Beams, 3.5¢ on wharf

store; Tees, 3¢ @ 3.5¢ from store.

Plate Iron.-Business is very quiet. arge dealers report the dullness worse than they ever experienced. Prices are weak, but quotations continue unchanged, as follows: Common or Tank, 2.6¢ @ 2.75¢; Refined, 2.75¢ @ 3¢; Shell, 3¢ @ 3.2¢; Flange, 4¢ @ 41/4¢; Extra Flange, 41/2¢ @

Sheet Iron.-The demand is very disappointing, and, as compared with other seaons, trade is exceedingly dull. The Eastern mills are competing sharply for business, and a considerable lot of Thin Sheets was offered by a Western mill during the past week at a very low figure. Prices from store are, however, very slightly changed. We quote to 16. Lighter sizes are quoted in our New York Wholesale Price List.

Steel .- The demand is fair, and we hear little complaint of dullness. We quote American Tool Steel at 11¢, with a concession to large buyers; Crucible Machinery, 61/24 @ 7¢; Bessemer and Open-Hearth Machinery, 3¼¢@ 4¢; Toe-calk, 3¼¢@ 35%¢; Boiler Plates, 5¢ @ 6¢, with extra for special sizes; English Tool, 15 1/6.

Wire Rods. - The market is weaker under Steel Rods by Wire mills which had made purchases in excess of their requirements, or have other satisfactory reasons for selling. The nominal quotation for Steel Rods is \$48. There is a little doing in Iron Rods in small lots. German Iron Rods are quoted \$48 @ \$57, according to quality. Swedish Rods, \$62 @ \$65.

Steel Rails,-The prospects are favorable for large transactions, as it is not believed that the leading railroad companies can defer their purchases much longer for next spring's requirements. In view of the heavy orders which must be placed, amountin the aggregate to several hundred thousand tons, the mills have taken a firm attitude and insist that \$37 at mill is the bottom figure. It is understood that they have determined to reduce their production onethird, in order to maintain present prices. If such an arrangement can be carried out it will undoubtedly result in steady prices for the present and higher prices in the near future. But, on the other hand, if an attempt at such restriction of production be made, and it is not supported in good faith by all the mills, there will follow a fiercer competition than ever, which will result in the utter demoralization of prices. As the Steel Rail interest is one of overshadowing magnitude, all other branches of the Iron trade are interested in the result of the experiment which is to be tried. If Steel Rails drop to still lower figures, other prices will pool. Makers in Wales are booked, in fact, two months ahead, and Tin Plates never held are reported sales of 25,000 tons at figures not yet made public. Small lots for winter delivery command \$37 @ \$38 at mill.

Old Material .- There is more inquiry for No. 1 Wrought Scrap, but prices are weaker.

No. 1 Wrought Scrap, but prices are weaker.

Although the spot supply is very small, beliaved to be not above 700 tons in yard and liaved to be not above 700 tons in yard and we are informed that the warket is steady. it is hard to move at \$24 @ \$24.50 for Best Selected from yard, and \$23 @ \$23.50 from ship and store. Buyers offer \$22.40 for yard lots, which is only about the cost of importation of mixed lots, which have to be selected in yard at considerable expense. Old Rails are weaker, being offered at about \$21 for shipment. We are reported a sale of 600 tons American T's at \$21 on dock, and small lots at \$22.50. For Double Heads \$25.50 is bid. Old Car Wheels are held at \$19.

TRANSACTIONS ON THE NEW YORK METAL EXCHANGE.

We are reported the following transactions on the New York Metal Exchange from Wednesday noon of last week to Wednes

WEDNESDAY, October 24. - Second call. No transactions.
THURSDAY, October 25. SATURDAY, October 27, ions. 10 tons Straits Tin, Feb. No transactions. MONDAY, October 29. No transactions. Tuesday, October 30. No transactions.

Wednesday, October 31.—First call.

quiry for 30 % Spiegeleisen, but we do not from the secretary of the Exchange, Mr. Ed-Bar Iron.-Store trade costinues fairly Metal Exchange Blue Book for 1883," conmills, which are laying down Iron here at change Market Report for the first year of Refined selling as low as 1.85¢ and as high as execution, and show considerable enterprise Full Circles, from Flat Iron, 1 to 1% inches wide, 2.2¢ at mill, according to brand and specifiby the secretary. The Exchange recently cation, yet the Iron sold at the lower figure purchased the property occupied by it, at the is said to be of good quality. Common Iron corner of Pearl street and Burling Slip, paysells at 1.7¢ @ 1.75¢ at mill. From store, ing \$43,000 for the building and lot. A special ra on 3%. \$1 per Wheels, with the Best Refined sells at 2.2¢ @ 2.3¢, and Common at 2¢ @ 2.1¢. to consider a proposed amendment to the byto consider a proposed amendment to the by-Structural and Shaped Iron.-There laws, embodying a plan of life insurance.

for round lots; Angles, 2.5¢ @ 2.6¢ from to \$10,000 insurance, according to the number of subscribing members. After some discussion the matter was referred to the Law Committee, which was directed to report upon it in two weeks.

Copper.-The market has been flat, sales not exceeding 200,000 fb Lake Superior at 15 @ 15 1/8 , while other brands are worth 141/4 @ 143/84. London has improved £1 with Chili Bars; cabled last night £62, while Best Selected remains £67. We received thence the ensuing cablegram to-day : 'Market a little steadier. Best Selected, £67 @ £68, and Chili Bars, £61. 10/ @ £62. At the same time we receive a letter from Messrs. James Lewis & Son, Liverpool, for Common Sheets, 3¢ @ 3.3¢ for Nos. 10 dated 16th instant, from which we extract the following passage: "The import of Copper produce for the year ending the 30th of September last, as compared with the previous 12 months has been very carefully made up by us, and you will notice the large increase, chiefly from your country, Spain and the Cape. The aggregate, you will find, is 95,222 tons, against 85,452 the previous year. Values with us have given way very considerably during the past fortnight, to the extent of about 30/ P ton. a light demand and resales at low prices of pears to be chiefly due to the fact that some of the large holders have lest faith in the futura of the market, and have commenced to sell a portion of their stocks. This is hardly surprising, as the import into England has shown the excess above alluded to. On the other hand, however, the consumption has also largely increased. The future of the market mainly depends upon the supplies from the United States. If they continue on the same scale as of late we shall doubtless see lower prices." Manufactures may be quoted as under: Bottoms, 240 Braziers, 24¢; Sheathing, 22¢, and Bolt Copper, 24¢.

Tin .- There has been a little better feeling in the market at 201/8/6, Straits, on the spot. London cables £93. 10/, spot, and £94 futures. For future shipment, there is more inquiry, but there are few sellers thereof. Messrs. Dummler & Co., Batavia, cabled to Mr. Charles Nordhaus, East India thereof. agent, 13 Cedar street, New York, under yesterday's date: "Ten thousand piculs Billiton Tin sold at auction at 63,75 guilders Picul, equal to £94. 10/cost and freight per steam to New York." We receive this afternoon the following cable dispatch from London: "Market quiet, with prices a little steadier. Straits Ingot, spot, £93. 10/@ £94. 5/. and futures, £93. 5/@ £93. 15/." Week's shipments from Singapore, 300 tons to London and 50 tons to New York, making 250 tons for the whole month to this country. agent, 13 Cedar street, New York, under 250 tons for the whole month to this country.

Tin Plates.—Trade is not up to expectations at this time of the year, and the only sup-port the market finds for the moment is from light stocks here and firmness at Liver a sounder and intrinsically stronger position between the two Atlantic shores. We quote Charcoal Bright, \$5.62½ @ \$6; ditto Ternes, \$5.12½ @ \$5.37½; Coke Tin, \$5.05 @ \$5.15, and ditto Ternes, \$4.62½ @ \$4.87½. Liverpool wires Charcoal, 18/6 @

Domestic and Corroding sold at \$4.10, and \$4\text{\$\emptyset} \text{\$\emptyset}\$ bis now all that is offered. The free offerings of bullion out West, at notably reduced rates, are said to be the notably reduced rates, are said to be the main cause of the weakness in Lead, now noticeable on all hands. St. Louis is down to \$3.80 for both Hard and Soft. From London we receive to-day the cablegram we give herewith: "Prices are lower. Common English Pig, £11. 17/6 @ £12. 2/6." Manufactures are quoted as follows: Lead Pipe, 6¾¢; Sheet Lead, 7½¢; Tin-lined Lead Pipe, 15¢ ? Bh, and Block-Tin Pipe, 45¢, less the usual discount to dealers..

Snelter and Zhe No revival in the

Spelter and Zinc .- No revival in the demand, and no recovery in prices can so far be announced, and the featureless character of the market continues as heretofore.
The little selling of Common Domestic brings 4%\$\psi\$ with difficulty. Silesian is firm at 5\forall \psi\$. We quote Bertha Refined, 7\forall \psi\$ @ 8\psi\$; Bergenport, 9\forall \psi\$, and Sheet Zinc is moderately active at 5\forall \psi\$ @ 5\forall \psi\$. From London we are cabled: "Market quiet. Ordinary, at shipping ports, £15. 7/6

Antimony-Remains neglected; Hallett at 9¢, and Cookson at 10¢ @ 101/8¢.

OLD METALS, PAPER STOCK, &c

purchasing prices offered by dealers are as follows: Copper, heavy ...
light ...
Copper Bottoms.
Yellow Metal ...
Brass, heavy ...
light Lead, heavy... Tea Lead.... Wrought Iron... Light "Stove Plate Iron Machinery Grate Bars Stereotype Plates

The prices carrent (prices paid by local dealers) for Rags, &c., are as follows:

	Canvas, Linea	lb,	316c. 05
	White Cotton, New	9.3	316c. @
	" No. 2	44	214c. @ 214c.
	White, No. 1	44	3 kc. @ 4 c.
	" No. 2	4.5	134c. @ 2 c.
1	Seconds	4.6	Sec. or I c.
J	CS C4 TS7 -1		
1			516c. a. 616c.
	Mixed Rags.	6.0	139c. (c) 134c.
1	Gunny Bagging		136c. @ -
	Jute Butts	4.6	114c. 00
	Kentucky Bazzing	**	314c @ 316c.
	Rook Stook		Iller or the
	Book Stock		116c. @ 14c.
	Newspapers	**	1 c. @
1	Waste Paper and Scraps	16	56C. (B
1	Kentucky Bale Rope	56	314c. or 4 c

COAL

In the Anthracite Coal trade there is ood seasonable business in progress, so that the subject of restricting production is no longer discussed. There may be a suspension in December, but of this there is nothing positive. Free-burning White Ash drags, except as to domestic sizes. This is partly owing to the gradual substitution of Bituminous Coal for other descriptions for manufacturing purposes. The Pennsylvania Coal Company report themselves full of business and short in two or three sizes. On the line of the Hudson River trade is particularly active, there being only about 35 days more of navigation this season. Lykens Valley Red Ash and special brands are scarce and prices firm. In the market at large prices are irregular, it being nothing unusual to find a difference of 40¢ P ton among the dealers. For several descriptions full circular prices are realized.

Bituminous Coal is dull and profits over

cost of production are scaled to the lowest figures. The total amount of Bituminous sent to market thus far in the year 1883 is 3,976,131 tons, compared with 3,474,266 tons for the corresponding period last year. The total amount of Anthracite was 757,318 tons, compared with 690,515 tons last year. It is surmised that shipments from the mines will be largely reduced after December 1.

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the

week ending Octob	or 30, 1003.
Dutch West Indies. Quan. Val. Ptlm., gals	British East Indie Quan. Va Ptlm., gals.464,000 41,7 Lisbon. W. mills, cs 2 Santander.
Ptlm., gals. 259,250 24,305 Great Yarmouth.	Ptlm., gals.215,667 19,00
Ptlm., gals	Mach'y, ßkgs. 34 2,0 Ag. Imp., pkgs. 34 2,2 Hdw., pkgs. 7 2,2 Copper, cks. 180 33,7 Pumps, pkgs. 12 6 Copper, pkgs. 19 8,16 Sew. ma., cs. 6 3,0 French West Indies Sew. ma., cs. 9 51 Bordeaux. Copper, cks. 180 33,7
Hdw., pkgs 41 1,584 Amsterdam	Brazil.
Ptlm., gals. 387,909 29,708 Hdw., cs 19 719 Pumps, pkgs 8 450 Mf. iron, pkgs 6 77	Mf. iron, pkgs 59 35 Pistols, case. 1 34 Clocks, cs 8 17 Cutlery, cs 38 1,66 Sew. ma., cs 6 18

Antwerp.	Nails, kegs 265
n., gls.1,000,071 77,6	15 I'n.boats, pkgs 1475 18.
eks, pkge. 1	48 Ptlm., gals. 152,895 16,
iron, pkgs 40 1,5	
h'y, pkgs. 2 1,9	40 Hdw., pkgs 23
v., cs., 78 1,1	
. ma., cs 105 1,5	
Hull.	Scales, cs 11
es, bxs 288 9,5	98 S. nails, cs 9
h'y, pkgs. 5 1,9	50 Kans 000 1,
plates 22 1,6	73 China.
ks, pkgs 88 8	33 Ptlm., gals. 380,020 34,
ma., cs., 201 1,55	0 Mf. iron, pkgs. 24
cs 17 8	8alonica.
mp., pkgs 23 2,69	18 741 100 000 10
ps, pkgs 5	Ptlm., gals. 132,250 13,
	Contral America

Cloc Mf. Mac Hdv Sew

Scale Mack Steel Clock Sew. Hdw Ag. i Pum

plates	22	1,673	China.	
s, pkgs	88	833	Ptlm., gals.380,020	34.6
ma., cs	201	1,520	Mf. iron, pkgs. 24	6
. CS	17	808	Salonica.	
np., pkgs	23	2,693	Ptlm., gals. 132,250	18.5
s, pkgs	13	85		
Liverpe	ool.		Central Ameri	ca.
ma., cs	28	2,375	Mach'y, pkgs. 45	2,0
ts, cs	8	225	Pumps, case 1	1
gers, cs	4	75	Ag. imp., pkgs 8	
er, slabs.	29	93	Hdw., pkgs 14	2
. C8	25	4,846	Ptlm., gals 444	
on, pkgs	22	34	Argentine Repu	614
y, pkgs.	41	3,688	Scales, cs 39	8
pkgs	124	8,872	Ag. imp., pkgs 180	1,9
l plte.,cs.	22	200	Cartridges.cs., 8	1
s, pkge	1	40	Ptlm., gals 14,000	1.8
5, CS	194	3,894	Hdw., pkgs 118	2.4
i, bxs	22	918	Mf. iron,pkgs. 140	1,2
pkgs	18	86	Nails, pkgs 87	5
case	- 1	117	Sew. ma., cs 145	4,6
rms, cse.	- 6	460	W. mills, cs 16	8
S	1	217	Rifles, cs 2	8
bbl	î	70	Stmpdwre, cs. 37	94
CB80			Pumps. pkgs. 11	4
Vova Sco	era.		Heng Kong.	

trass bbl 1 217	Rines, Cal 2 82
Brass, bbl 1 217 Steel, case 1 75	Stmpdwre, cs. 37 90 Pumps, pkgs. 11 49
Nova Scotia.	
	Hong Kong.
tlm., gals6850 790	Mf. iron, pkgs 19 17
ff. iron, pkgs 16 196	Ptlm., gals.520,000 52,00
Idw., pkgs 6 221	Rifles, cs 4 85
SERVICE COMMITTER CO. ACCOUNT.	Mexico.
THOM At Landa.	
London.	Hdw. pkgs 23 83
lach'y, pkgs. 76 11,869	Cartridges,cs. 4 77 Mach'y, pkgs. 172 11,32
tlm., gals. 80,087 70,124	
umps, pkgs. 8 485	Ag. imp.,pkgs 23 29 Tin plate, bxs 20 13
g. imp., pkgs 10 105	Plumbers'ma-
lf. iron, pkgs. 36 383	terials, cs 2 14
ails, keg 1 5	Piz, tons 10 16
ells, cs 8 51	R. R. cars 8 2,1/2
rimed shell,	Cutlery, cs 2 3
case 1 80	Mf. iron, pkgs 163 2,40
ead traps,cs. 84 1,055	Pumps, pkgs. 4 196
ubing, case 1 337	Sew. ma., cse. 11 48
Vater wheel 1 100	Nails, kegs 104 32
Vire, case, 1 150	Per. caps, cs 5 173
ew. ma., cse. 1089 20,430 dw. pkss 250 5,898	Nails, case 1 2
	Ptim., gals20,500 1,998
	Boiler tubes 114 40
	Scales, cs 8 8
a anappropriate to the state of	Casters, cs,. 1 56
rass g'ds, cs. 3 21 arbines, cs. 37 8,680	Peru.
7. mills, cs 7 176	Ptlm., gals10,000 956
, IIIIIII 4 191	Helm please 3 175

Vater wheel	150	THREE BUES IU	33
Vire, case, 1		Per. caps, cs	
ew. ma., cse. 1089	5,898	Nails, case	1.25
	2,894	A CHILLIAN BOOKED	1,99
	40	Boiler tubes 114	
	69	Scales, cs ?	
	21	Casters, cs,.	56
Brass g'ds, cs. 87	8,680	Peru.	
	176	Ptlm., gals 10,000	956
	131	Hdw., pkgs 8	
artridges, cs. 4 . m. castings,		Scales, bxs 4	186
cks 101	800		
cales, cs 21	842	Spanish Posses	
teel, box 1	10	in Africa.	
Glasgow.		Ptlm., gals5000	587
ew. ma., cs. 111	1,858	Cagliahi.	
lach'y, pkgs. 9	1,068	Ptlm., gals. 194,000	17,460
rollers, cs. 5	180	United States o	
t'dw're, pkgs 7	187		, 00-
ff. iron, pkgs 2	27	lombia.	
ldw., cs 11	244	Mf. iron, pkgs 269	2,721
oiler 1	1,460	Ptlm, gals2422	324
artridges, cs. 2	80	Sew. ma., cs 40	925
ritish West In	dies.	Cutlery, cs 9	1,565
f. iron, pkgs 70	870	Firearms, cs 2	700
f. iron, pkgs 70 irearms, cs. 2	192	Zine, eks 2	78
cales, cs 52	427	Nails, cs 3	85
ails, kegs 150	548	Saws, cs 2	69
	25	Br. g'ds., cs 2	220
tlm., gals27,130	8,064	Revolvers, cs., 6	1,830
dw., pkgs 67	1,378	Shot, case 1	24
g. imp., pkgs 17	262	Iron safes 4	338
	498	Boiler 1	3,850
	E.5.	Locomotives 3	27,110
	2016	Wire g'ds, bxs. 2	10
THE RESIDENCE SOURCE	148	Hdw., pkgs 116	8,160
	80	Mach'y, pkgs. 6	818
	1,005	Cartridges, cs. 7	149
unps 4	585	Nails, cs 85	268
ire rope, coils 11	_	Pumps, pkgs. 3	26
Newfoundlan	d.	Ag. imp.,pkgs 8	184
ocks, bxs 40	8.15	Buckles, case. 1	66
tin., gals 3536	335	Scales, cs 8	828
The state of the s	9.77	Gun caps, case 1	13

British

New Bruns

Ptlm. gals .16,132 1,657 Tin crystals,

wheel	. 1	100	Nails, kegs 104	337	Bronzes	78	9,660
38e	. 1	150	Per. caps, cs. 5	175	Chains and anchors	. 26	2,133
a., cse.	1089	20,430	Nails, case 1	28	Clocks	135	15,907
kg8		5,898	ATERIO, CEROC A		Copper	14 11	9,251
pkgs		2,894	Ptim., gals20,500	1,998	Cutlery	123	33,702
ds, cs	14	40	Boiler tubes 114		Gas fixtures		120
rs		69	Scales, cs 3	85	Guns	96	16,235
ds, cs.	- 8	21	Casters, cs,. 1	50	Hardware		1,828
6, CS	87	8,680	Peru.		Iron, pig, tons		67,684
8, CS	7	176	Ptlm., gals 10,000	950	Iron, sheet, tons		77,318
ges, cs.	4	131	Hdw., pkgs 8	172	Iron ore, tons		465
stings,			Scales, bxs 4	186	Iron, other, tons		64,174
		800			Machinery	228	13,578
CB		842	Spanish Possess	1(0115	Metal goods		28,567
	1	10	in Africa.		Needles	N	8,717
0X		30	Ptlm., gals5000	587	Nickel.		6,032
lasgo	100			1202.0	Old metal		1,943
B., CH.	111	1.858	Cagliahi.		Platina	. 1	1,880
pkgs.	9	1.068	Ptlm., gals. 194,000	17,460	Percussion caps,		1.3 2
8. CS	- 5	180	United States of		Pins.		2,343
e, pkgs	7	187			Saddlery		1,006
. pkgs	- 9	27	lombia.		Steel		48,984
8	11	244	Mf. iron, pkgs 269	2,721	Steel blooms	46	170
	1	1,460	Ptlm, gals2422	824	Spelter		6,710
res, cs.	2	80	Sew. ma., cs 40	912%	Silver ore		518
,,			Cutlery, cs 9	1,565	Tin, bxs		263,985
W-at	1.40	ates.	Firearms, cs 2	700	Tin slabs, 8,543; lbs		172,099
, pkgs	70	870	Zine, eks 2	78			
IS, CB	2	192	Nails, cs 8	85	Wire		4,400
CS	532	427	Saws, cs 2	69	Zinc		142
	150	548	Br. g ds., cs 2	220	The importations of hard	lware ar	nd metals
Calse	1	25	Revolvers, cs., 6	1.830	compare with previous date		
als 27.	130	8,064	Shot, case 1	24			
kgs	67	1.878	Iron safes 4	338	For the	48 weeks	Same
, pkgs	17	262	Boiler 1	3,850	week.	of 1883.	time 1882.
ukgs	13	498		27,110	Cutlery, pkgs 123	6,390	6,262
pkgs.	11	825			Hardware, pkgs 8	984	858
CH.	50	206	Wire g'ds, bxs. 2	9 160	Iron, R. R., bars	10,789	87,504
es, cs.	6	148	Hdw., pkgs 116	8,160	Lead, pigs	10,479	28,853
50	1	80	Mach'y, pkgs. 6 Cartridges, cs. 7	818	Steel, pkges 12,410	2,437,901	1,628,722
	4	1,005		149	Tin, bxs 52,739	1,804,139	1,849,602
e,coils	11	585	Nails, cs 85	268		20,097,550	16,135,766
		_	Pumps, pkgs. 3	26			
found	lano	A.	Ag. unp.,pkgs 8	184			
DXS	40	8.16	Buckles, case. 1	66	DULLABELD		
als 3	<36	335	Scales, cs 8	838	PHILADELP	HIA.	
		17	Gun caps, case 1	13	Office of The Law Ass 000 Co	such Blasses	1. 00
., CS	21	4:29	Car springs 84	193	Office of The Iron Age, 220 So	Out 20	HOL,
pkgs	7	96	Clocks, pkgs 2	150	PHILADELPHIA	, Oct. 30,	1000.
	2	21	Tubes, box 1	59	Pig IronThe market	shows n	o special
h Hon	A		Gruguay.				
		-		1 590	change of feature, the de		
ils8		83/12	Ptlm., gals. 13,180	1,538	and uncertain, while prices	are bare	ly main-
egs		311	Pumps, pkgs. 7	840 477	tained. There is an unus		
okgs	17	845	Cutlery, cs 44				
0.00	-61	804	Scales, bxs 10	175	quotations, and it is a di		
					The state of the s		

Cuba.		Quan	. Val.
Quan.	Val.	Water motor. 1	200
Mf. iron, pkgs. 496	8,551	Hdw., pkgs 15	154
Hdw., pkgs 130	8,258	Dunkirk.	
Car wheels 171	2,224		40.000
Boiler and bbls 4	112	Ptlm., gals.285,559	18,879
Spikes, kegs 131	489	Fium.	
Steam pumps. 5	1,430	Ptlm , gals .805,900	59,100
Plumbers' ma-	120.0	Trieste.	0.4,100
terials, pkgs 10	895		
Tin, pigs 9 Lead, pigs 9	236	Ptlm., gals. 292,756	24,850
	56	Hayti.	
Mach'y, pkgs. 1068 Tacks, case 1	74,755	Ptlm., gals 500	58
Iron bars 103	458		
Scales, cs 92	2,435	Venezuela.	
Ptlm. gals 200,875	19,070	Mf. iron, pkgs 6	60
Cutlery, cs 87	1,784	Ag. imp., pkgs 2	50
Nails, kegs 57	161	Nails, kegs 8	26
Cop. g'ds, case 1	87	Clocks, cs 9	180
Brass g'ds, cs. 2	68	Ptlm., gals3000	
Iron tubes 80	268	Sew. ma., es 45	1,044
Tin plates, cse 1	21	Mach'y, pkge. 18	395
Ag. imp.,pkgs 21	745	Scales, cs 6	100
Scale 1	215	Chill.	
Porto Rico			400
		Mach'y, pkgs. 8	400
Gas meters,	968	Scales, cs 82	850
		Ag. imp., pkgs 259	8,423
Saws, cs 2 Pumps, pkge. 1	106	Sew. ma., cs 5	138
Pumps, pkge. 1 Scale 1	97	Hdw., pkgs 54	1,417
Clocks, bxs 5	115	Mf. iron, pkgs 10	155
Mf. iron, pkgs 6	78	Ptm, gals15,200	1,765
mi. non, page o	101	Nails, kegs 250	767

IMPORTS

	Of Hardware, Iron.	Steel and Metals in
	the Port of New Yo	rk, for the Week end
	ing Oct. 31, 1883.	
	Hardware.	Meyer G. A. & E.
	Barbour Flax Spinning	Oxide, bbls., 120
	Co,	Naylor & Co. Rivet iron, coil
	Mach'y, cs., 9 Boker Hermann & Co.	1222
	Hdw., cutlery and	Park Bros.
	guns, cs 66	Cases, 2
	Curley J. & Bro.	Pierson & Co.
1	Cases, 3	Sheets, bdls., 857 Rivera J. De,
1	Deeley R. & Co. Box, 1	Sugar mill roller, 1
	Degrauw, Aymar & Co.	Simpson E. & Co.
1	Chains, lengths, 3	Case, 1
1	Downing, Sheldon & Co.	Stetson Geo. H. & Co.
1	Cases, 7 Drexel, Morgan & Co.	Pig, tons, 350 Sanderson & Son.
ı	Arms, cs., 4	Sheet, pkgs., 16
1	Field Alfred & Co.	Williamson Jas. & Co.
1	Mdse., cs., 4	Pig, tons, 100
ı	Folsom H. & D.	Order, Pig. tons, 572
ł	Guns, cs., 6 Frasse P. A. & Co.	Bars, 4122
I	Mdse., cs., 4	Bdls., 188
I	Gerdan Otto	Spiegel, tons, 62914
I	Bdls., 148	Pkgs. and pes., 481
ı	Graef Cutlery Co.	Pipes, 211
ł	Cases, 8	Cast pipes, 362 Sheets, pkgs, 2626
ı	Godfrey C. J. Guns, case, 1	Sheets, pkgs, 2626 Tubes, 260
ı	Hartley & Graham,	Wire, coils, 458
ŀ	Arms, cs., 11	Scrap, tons, 199
l	Hoadley & Co.	MA
l	Mach'y, bxs., 9 Hydraulic jacks, 2	Steel.
ı	Markt & Co.	Abbott Jere & Co.
l	Mdse., cs., 46	Cases, 67
ĺ	Merch. Disp. Co.	Brown Wm. Pkgs., 161
ı	Pkgs., i7	Cary & Moen,
ı	Moore's Sons J. P.	Bdls., 166 Plock & Co.
l	Guns, cs., 5 Phipps & Train,	Plock & Co.
ł	Mach'ry, pkgs, 3	Tires, 150
ı	Schoverling, Daly &	Smith Geo. Wire plates, 6
ı	Gales,	Temple & Lockwood,
l	Mdse., cs., 19 Arms, cs., 7	Pkgs., 28
ı	Wiebusch, Hilger & Co.	Wagner W. F. Bdls., 317
ı	Hdw. and cutlery,	Bdls., 317
l	pkgs, 29	Bars, 88 Cases, 6
	Iron.	Order,
,	Anglo Am. Roofing Co.	Oldspring, tons, 48
	Cases, 75	Rails, 932
1	Alexandre, F. & Sons,	Casks, 4
	Piles, 2 Caps, 3	Rods, bdls., 4014 Rods, pkgs., 64
	Baring Bros. & Co.	Transi Trafford or
	Wire colla 19 719	Materia

1,660	Pkgs., 17
184	Moore's Sons J. P.
840	Guns, cs., 5
3,000	Phipps & Train,
3,057	Mach'ry, pkgs, 3
160	Schoverling, Daly &
354	Gales,
82	Mdse., cs., 19
100	Arms, cs., 7
230	Wiebusch, Hilger & Co.
51	Hdw. and cutlery,
,554	pkgs, 29
	Iron.
,679	Anglo Am. Roofing Co.
670	Cases, 75
	Alexandre, F. & Sons,
,500	Piles, 2
	Caps, 3
F	Baring Bros. & Co.
,016	Wire, coils, 12,713
105	Bars, 5508
62	Wire rods, coils, 1061
200	Betts F. H.
64	Iron hearth, 1 Brown Bros. & Co.
He.	Bdls., 301
876	Bars, 1713
,902	Coddington T. B. & Co.
199	Sheets, bdls., 451
,850	Sheets, bdls., 451 Culham W. H.
408	Wrought scrap, tons,

Bars, 5508	and the total
Wire rods, coils, 1061	Barnes & Co.
Betts F. H.	Tin, slabs, 590
Iron hearth, 1	Brown Bros. & Co.
Brown Bros. & Co.	Zinc ashes, cks., 20
Bdls., 301	Foote Emerson,
Bars, 1718	Mdse., cs., 10
Coddington T. B. & Co.	Howe & Goodwin,
Sheets, bdls., 451	Brassware, cs., 2
Culham W. H.	Howland & Aspinwall,
Wrought scrap, tons,	Metal, cks., 4
305	Marcial & Co.
Crocker Bros.	Copper, cs., 14
Pig, tons, 200	New Haven Clock Co.
Spiegel, tons, 21016	Mdse., cs., 11
Great Western Dispatch	Phelps, Dodge & Co.
Co.	Tin plates, bxs., 8546
Beams, 12	Tin, slabs, 976
Keogh C. B.	Windmuller Louis & Co.
Ironwork, pkgs., 5	Zinc, sheets, 12
Lee James & Co.	Order,
Pig, tons, 100	Tin plates, bxs., 6537
Mason John W. & Co.	Tin, bxs., 4584
Wire rope, coils, 18	Tin, slabs, 1204

FOREIGN TRADE MOVEMENTS.

Included in the imports for the week ending October 26 were leading articles of merchandise valued as follows:

Н	Bismuth	Transace.		980
	Bronzes		78	9,660
	Chains and anchors		. 26	2,13
	Clocks			15,90
	Copper			9,25
	Cutlery		. 123	33,70;
	Gas fixtures		2	120
	Guns			16,233
	Hardware			1.82
1	Iron, pig, tons			67,68
ı	Iron, sheet, tons			77,318
	Iron ore, tons			463
1	Iron, other, tons		2,056	64,174
1	Machinery		228	13,578
	Metal goods		341	28,567
ı	Needles			8,717
	Nickel		. 13	6,032
1	Old metal			1,948
ı	Platina		. 1	1,8%
1	Percussion caps		. 6	1.3 2
1	Pins.		. 46	2,348
1	Saddlery		. 14	1,000
1	Steel			43,984
1	Steel blooms		. 46	170
1	Spelter		.168,021	6,710
	Silver ore			518
	Tin, bxs		52,739	263,985
	Tin slabs, 8,543; lbs		.793,227	- 172,099
	Wire			4,400
	Zinc			142
l	The importations			
	compare with previo	ous date	s as follo	WS:
ı		week.	48 weeks	Same
	Charliana albert	128	of 1883.	time 1882.
	Cutlery, pkgs	128	6,390 984	6,262
	Hardware, pkgs			858
	Iron, R. R., bars		10,789	
	Lead, pigs	10.610	10,479	28,853
	Steel, pkges	12,410	2,437,901	1,628,722

PHILADELPHIA.

some reason to believe, is not ill founded.

The past week or two has been very dull,

to prices realized. There are a few brands which undoubtedly command the figures claimed, but others can be had at from \$1 to \$2 \frac{7}{2}\$ ton less money, and,

in fact, are hard to move, notwithstanding and the figures claimed, but others can be had at from \$1 to \$2 \frac{7}{2}\$ ton less money, and,

in fact, are hard to move, notwithstanding and the figures claimed, but others can be had at from \$1 to \$2 \frac{7}{2}\$ ton less money, and,

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in fact, are hard to move, notwithstanding and the figures claimed, but others can be had at from \$1 to \$2 \frac{7}{2}\$ ton less money, and,

in fact, are hard to move, notwithstanding and the figures claimed.

the low quotations at which they are offered-Compared with last week, there is no improvement to note either in price or demand, but the feeling seems to be slightly steadier, due, in some measure, perhaps, to the improved feeling in the stock market, and in part to the absorption of a few lots of Iron which have been forced on the market at low prices. The Bulletin of the Iron and low prices. The Bulletin of the Iron and Steel Association takes a hopeful view of the position, as shown by the following extract: "We hear of several blast furnaces having been blown out during the present month.

This fact, coupled with the reduction in importations of Pig Iron in September, which we understand is being continued through October, ought to have an immediate wholesome effect on prices. With the volume of consumption so large as it has been all through the year, and with much smaller importations this year than in any of the last few years, the prices of Pig Iron in our markets ought not to have given way as they have done. We repeat what we have previously said, that there is no large accumulation of stocks anywhere. The trade has often carried much larger stocks and that there has been a panicky feeling among our Pig-Iron friends during the last two months, and it is wholly responsible for the decline that has taken place. The panic in the stock market in August, it can now be seen, was communicated to the most sensitive branch of our Iron industry. Producers of Pig Iron, fearing that the prices for their product might decline in the near future, in sympathy with the decline in speculative stocks, made haste to find purchasers as soon stocks, made naste to find purchasers as soon as a few wagon-loads of Pig Iron made their appearance on their respective furnace banks. Consumers, too, were led by the August flurry in stocks to look for lower prices for Pig Iron, and, consequently, they bought sparingly to meet their immediate wants. Between the haste to sell on the one hand and the disinclination to buy on the other hand, prices have come to what we see them. It is high time that they should take a turn upward. This country is not going into bankruptcy; it is, on the contrary, financially sound. The consumption of Iron to supply the actual wants of the country is well maintained. There seems to be no good reason, therefore, why our Pig-Iron industry, with no present overproduction, and with declining imports of foreign Pig Iron, should not at once rally from the panicky state into which it fell two months ago."

The statement in the last sentence, that there is no overproduction, is of vast impor there is no overproduction, is of vast impor-tance if borne out by facts. The steady de-cline in prices is supposed to have been the result of an oversupply, but if should prove that the surplus has been absorbed, and that there is now no overproduction, a reaction in prices will certainly follow, unless there is a still further shrinkage in consumption, a contingency which is by no means improbable. However that may be, there are no immediate indications of improvement, and sellers are accepting bids to-day at figures as low as any within the past four years. Mill Irons have been picked up in large lots at prices varying from \$17.50 to \$18, delivered, while smaller lots are available at all sorts of figures from \$18 up to \$20, according to brand, the usual rates being \$18 @ \$18.50, only a few special brands commanding higher figures. Foundry Irons are also very irregular, the range of prices for No. 1 being \$20.50 @ \$22.50, delivered, according to circumstances, but sales have been chiefly in cumstances, but sales have been chiefly in small lots, consumers showing no disposition whatever to carry stocks. No. 2 Foundry is dull; sales chiefly at \$19 @ \$20 according to brand. Business in Foundry Irons is very

inactive, and prices rather inclined to droop Foreign Iron.—No sales to report, and not very much probability of immediate business, although at \$20 for Bessemer it is likely that several thousand tons could be placed. Sellers ask \$20.50, and with the present firmness in freights it will be difficult to get prices down to \$20. Nothing doing in Spiegeleisen, which may be considered nominal at about \$30 @ \$30.50 for 20 %.

Muck Bars .- The demand is fair, and sellers still quote \$34 at mill for best qualities, but the feeling is not quite as firm as it

as some time ago.

Blooms.—Market extremely flat, and only very limited business can be done at about the following rates, say: Charcoal Blooms, \$55 @ \$57; Run-out Anthracite, \$47.50; Scrap Blooms, \$42 @ \$43; Northern Ore Blooms, \$30.50 @ \$41.50.

Bar Iron.—The market shows no im-

provement, and business is about as dull as it is possible to be to keep things moving at all. Several mills in the vicinity are seriously considering the question of a total suspension of work, and unless the demand actually does improve, there is no question that this will be carried into effect. It is hardly any use giving quotations at a time like the present—all depends on the size of order and requirements as to quality. As a rule, only small lots are taken, in which case 2.1¢ @ 2.2¢ is asked, while for larger lots some of the mills are quoting down to 2¢, without securing much business, however. It is not a question of price, but of demand; the Iron is not wanted. If it was, prices would soon be adjusted to meet the requirements of the case. The only way out of the difficulty, therefore, is to stop production, and there is no doubt that this will be done on a large scale if the demand does not improve within the next 60 days. In the meantime, the outlook is anything but encouraging.

Plate and Tank Iron.—Business has been somewhat limited during the past three or four weeks, so that the mills are getting their orders down to a very low point. The majority will probably be able to run full until pretty near the holidays, but if business does not come in more rapidly before that time, some of the Plate mills will be no better situated than kindred branches. At the Philadelphia, Oct. 30, 1888.

Pig Iron.—The market shows no special change of feature, the demand being slow and uncertain, while prices are barely maintained. There is an unusual disparity in some reason to believe, is not ill founded.

Structural Iron.-There is but little to report in this department, new business being very scarce and the outlook not par-ticularly promising. Manufacturers have still a moderate amount of orders on their books, but there is nothing coming in in proportion to their output. Prices are unchanged and about as follows: Double-Refined Bars, 2.5¢: Bridge Plates, 2.5¢: Angles, 2.3¢ @ 2.4¢; Tees, 2.8¢ @ 3¢; Beams and Channels

Sheet Iron .- The demand for Thin Sheets is fair, but the heavier descriptions are dull and hard to move. Prices are easier on large lots, although there is not much inquiry for lots of any size. Some of the mills are running only half or two-thirds their capacity, and others are considering the question of shutting down altogether unless the demand improves. We quote as follows for small lots: follows for small lots

TORON D TOS DISSESS TORD :
Common Sheets, No. 28
Common Sheets, Nos. 26 and 27
Common Sheets, Nos. 21 to 25
Common Sheets, Nos. 18 to 20
Best Refined, 1/4 % advance on the above.
Best Bloom Sheets, Nos. 26 to 28
Best Bloom Sheets, Nos. 22 to 25
Best Bloom Sheets, Nos. 16 to 21
Common Red Plates, 3-16 to 16
Blue Annealed
Best Bloom, Galvanized, discount
Second quality, discount
Wasneht Inca Dies mi 1

Wrought-Iron Pipe.-There has been wrought-from Pipe.—There has been somewhat more doing during the past week or ten days, and as regards retail business the market may be called fairly active, although prices show no improvement. Discounts may be quoted as follows: 60 @62½ % off list price on Boiler Tubes, and 70 and 5 @ 75 % off on Gas and Steam Pipe.

Steel Rails.-There appears to be more inquiry, and probably rather more inclina-tion among buyers to place orders. A con-siderable amount of Rails has to be bought for spring delivery, and it is more than probable that better terms will be made during the next 30 days than at a later period. Prompt deliveries usually command a pre Prompt deliveries usually command a premium, and buyers begin to realize that it will not be safe to postpone placing orders much longer. It is understood that \$36 is offered for several lots, and while \$37 might be shaded on specially desirable contracts, manufacturers consider that figure low enough for the general run of orders. Several sales have been made recently, and are others under negotiation on the basis of \$37 asked

Old Rails .- A considerable business has to the Kalls.—A considerable business has been done during the week, several thousand tons having been taken at prices varying from \$23.25 to \$24, Philadelphia or near-by delivery. One lot of root tons 70-lb T's sold to-day at \$24, early delivery, Philadelphia. The 800 tons Bridge Rails quoted two weeks ago at \$24 was an error and should have been \$2.50 the price was given to us at the

ago at \$24 was an error and should have been \$24.50; the price was given to us at the former figure by mistake.

Norap Iron.—The market is only fairly active, but really choice lots No. 1 command \$24.50 @ \$25 and are not in large supply. Cargo lots could be had at \$23, but there is no demand for lots of more than 50 to 100 tons each. Cast Scrap is quiet at \$16 @ \$17.50, according to quality.

Nails.—The demand continues active, but there is less urgency than has been the case

there is less urgency than has been the case for some time past. The general quotation is \$2.90, but the tendency appears to be to somewhat lower figures.

Mr. Wm. R. Hart, formerly connected with the house of Naylor & Co., and more recently as a partner in the firm of Bond, Parsons & Co., has this day withdrawn his interest, and will continue business on his own account at 224 South Third street, Philadelphia.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGH, PA., Oct. 30, 1883.

The general Iron trade has been pretty The general fron trade has been pretty well canvassed the past week, and while different reports were made, some operators talking a good deal more discouragingly than others, the general verdict is that it is far from being satisfactory. With here and there an exception, Western Iron men are in good condition, having but comparatively little rearrest, and there are but from who in good condition, having but comparatively little paper out, and there are but few who, in order to meet maturing obligations, are forced to sacrifice their products in order to raise funds. One of our best-informed operators, who is in a position to be well posted in regard to the Iron trade of this city, says that he thinks the situation has improved slightly within the past day or two, proved slightly within the past day or two, although at the same time he freely admits that there is still abundance of room for im-As stated in a former rep provement. As stated in a former report, the complaint is more in regard to unsatisfactory prices than a want of business.

Pig Iron.—There has been but little

change during the past week; business continues slow and exceedingly unsatisfactory to the producer, while prices remain as be-There have been some sales during week of Forge Iron below the rates quoted, but it was of an inferior quality. Consumers generally, particularly those anxious to keep up the reputation of their products, are willing to pay \$1 @ \$2 ? ton more for good Iron, realizing, as they do, more for good Iron, realizing, as they do, that it is cheapest in the end. As is nearly always the case, there is considerable poor stock offering, and it is exceed-ingly hard to sell, as many consumers refuse to have it at any price. As stated in our last report, our home furnaces, with a single exception, have but little Iron to sell; some of them are sold considerably ahead of their production, while outside fur naces-we mean those at a distance, both east and west of Pittsburgh—can do better at home than in this market; consequently, our home furnacemen have but little compe tition from abroad. Producers here say that the cost of production has been reduced possibly the failure in question may be followed by others has a bad effect. We repeat former quotations:

low on, and they claim that they can do business to better advantage and pay their bills more promptly in this way than

1	No. 1 Foundry	\$21.00 @	\$21.50, 4	mos
1	140. 2	19.00 @	30,00,4	60
1	No. 8 4,	18.00 @	18.50, 4	64
1	Gray Forge, Neutral	17.00 @	18,00, 4	46.
1	All-Ore Forge	19.00 @.	20.00, 4	6.0
- 1	Mottled and White	16.00 @	16.50, 4	14
1	Silvery	18.00 @	18.50, 4	14
1	Warm-blast Charcoal	24.00 @	28.00, 4	14
1	Cold " "		88.00, 4	41
1	Bessemer Iron	20.50 @	21.00, 4	++
-	In regard to Bessemer reported of any magnit	Iron, t	he last	sale

and refuse to sell for less. Muck Bar-Continues very dull, and ince the date of our last report prices have further declined, sales having been made as low as \$32.50, cash. We quote, however, at \$32.50 @ \$33, cash, for the reason that as yet there are but few sellers at the inside quotation, although we apprehend that it would be difficult to obtain any more. Mill owners say there is no profit at the prices quoted

that large blocks can be had at \$20.50, 4 months. City furnaces are all asking \$17.50,

cash, to \$18, 4 months, for Neutral Forge

Manufactured Iron.—The market for all kinds of Finished Iron continues in an unsettled and very unsatisfactory condition.
Orders continue small, indicating that buyers, apprehending still lower prices, are refusing to anticipate future wants. However, the mills nearly all continue in opera tion, some of them working pretty full but, with an active competition, prices con tinue irregular and unsettled, and herein lies the chief cause of complaint. Manufac turers continue to quote on a basis of $1.8 \neq \emptyset$ $1.9 \neq$ for Bars—that is, for well-assorted orders—but we hear of sales having been made, for delivery at Chicago, Milwaukee and St. Louis, on a considerably lower basis.

Nails .- The market, like that of other Iron products, is becoming unsatisfactory. Not only is the demand falling off, but prices have weakened and are irregular; we hear of sales as low as \$2.60, 60 days, 2 % off for cash, in carload lots and upward. Orders are mostly small, as is always the case when prices are weak. The question of restrict-ing production will not be acted upon until the next regular meeting of the Association, on the second Wednesday of November, and the factories will continue in operation until then, as makers are all anxious to make up an assorted stock before shutting down.

Wrought Iron Pipe.—There has been but little change in the situation during the past week. Business continues to keep pretty we'll for the season. Mills still have about all they can do, but prices are no better, and the prospect for an improvement in this latter respect is not very encouraging. Discounts on Gas and Steam Pipe are unchanged at 73 @ 75 %; on Boiler Tubes,

Old Rails .- There is not so much inquiry, but with light offerings, especially for near-by delivery, prices are steady. We can report a sale of 500 tons at \$24.50, which is the ruling price.

Steel Rails.—Heavy Sections are still quoted for November and December delivery at \$37.50 @ \$38, cash, at mill. Both of the mills are busy, having all they can do for some time to come

Crop Ends-Continue very dull; no sales eported for some time, in the absence of which we repeat former quotations, \$23.50 @ \$24, for American. Foreign would cost \$25.25 @ \$25.50 laid down here from the seaboard.

Railway Track Supplies.—There is no improvement to note in the demand; prices offish, but nominally unchanged. Railway Spikes, 2.6¢, 30 days; Splice Bars, 1.9¢ @ 2¢; Track Bolts, 3¢ @ 3¼¢, the former with square and the latter with hexagon nuts.

Steel.—The Merchant Steel trade continues dull for the season, with prices offish, brands of Refined Cast Steel, 11¢ @ 12¢; do. Crucible Machinery, 6½¢ @ 7¢; do. Bessemer and Open-Hearth, 4½¢ @ 5¢; Boiler Plates, 6¢ @ 6¼¢.

"Indow Glass.-There is no prospect whatever of an early termination of the strike. The conference committees appear to be making no movement with this in Stocks are very light and badly broken, and our manufacturers are buying Eastern Glass, with which they are filling orders. Prices, as might be expected, are firm and tending upward. Discounts are now quoted at 60 P cent. on carload lots on Single and 65 and 10 on Double Strength. The stock of Window Glass has not been so much reduced for several years.

Coke.-There is a steady and increasing demand. Operators say they have orders for all they can obtain by cars to ship, but prices are no better. We continue to quote at \$1 % ton, free on cars at ovens; \$1.10 for small lots. The syndicate movement noted for some time past continues, and the indications are that it will soon control the Connellsville field.

CHICAGO.

Office of The Iron Age, 36 and 38 Clark St., (Cor. Lake St., Chicago Oct. 29, 1888.

Hardware.-There is no change to note in the Hardware trade. The demand for nearly all classes of goods continues steady. that the cost of production has been reduced to the lowest possible limit; that to sell below present prices would be at a loss; that majority of jobbers. The last days of the low present prices would be at a loss; that under the most favorable circumstances the margin for profit at prices quoted is very small, and that if there should be a further decline they will blow out, on the ground that it is better to do nothing than work at a loss. It is probable that the failure of John N. Glidder, of Cleveland, will be the means of throwing considerable Iron upon the market, and the apprehension that possibly the failure in question may be followed. A. E. DEITZ.



PRICE OF STEEL PRAMES PER DOZEN.

9 inch.

No. 1. Extension Frame, Polished and Nickel Plated, per Dozen \$9.60 s. Solid 44 3. " Rough Nickeled,

These frames are all made of steel, and, as seen in the cut, are all adjustable so as to face the blade in four different directions. The extension frames will hold the four different lengths of blades. The solid frames only hold the 8-inch blades, this being the length most in use. They all have the patent staple-shaped pins to hold the blades in the frame, which are so arranged that they cannot fall out.

As this Saw cuts almost everything, it will do most of the sawing required about a house, shop or farm. It is especially good for Retail Hardware Dealers to cut Chains and Bars of Iron and Steel. One blade, which costs 5 cents, will cut off half-inch round iron 80 times, and the same size untermoderated of the control of the costs of the cos pered steel 40 times. These blades are all fully warranted, and may be returned at our cost if they do not prove better than any other kind in market. All genuine goods are marked with a star (*) and bear our name,

MILLERS FALLS CO.,

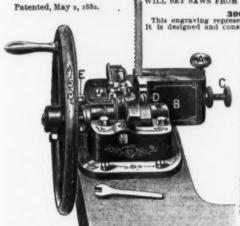
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Amesbury's Band Saw Setting Machine.



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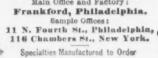


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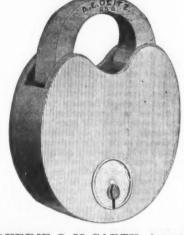
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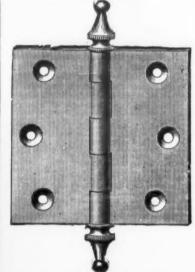
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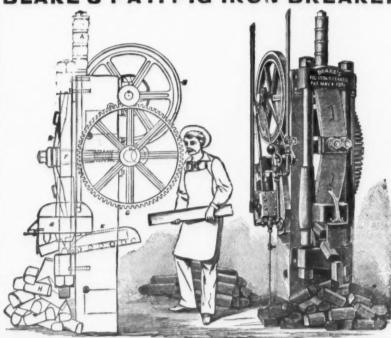
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A new and successful machine for breaking pig fron into any length desired, with rapidity and economy. Besides saving in cost of breaking by hand, it secures the greatest economy in melting. Several machines already in use. Every machine guaranteed against breakage of parts. Requires but three horse-power. Can be run by belt or have small engine attached.

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13 Sizes. \$9 to \$40. List.

JOBBERS handling large quantities of any special implements or machines, or desiring to do so, can make excellent arrangements with

THE NEW YORK PLOW CO.,

55 BEEKMAN STREET.

Works, - YONKERS, N. Y. by the old method of placing orders at regby the old method of placing orders at reg-ular seasons during the year. Prices hav-ing reached a pretty low figure, jobbers claim that there is little doubt of their being well sustained, while some of the more hopeful are steadily striving to increase their ratio of profit. There is, at least, nothing visible that points to weakness or prospective decline, while there are marks of strength and improvement.

Nails.-There was less demand for Nails during last week than for some weeks previous, particularly during the latter part.

The announcement from the manufacturers that the day of suspension was deferred until the 14th proximo seemed to shut off consumption simultaneously throughout the Western States. It is evident that much of the demand during the earlier part of the month was in excess of actual consumption, and was taken with a view of having a small stock in reserve to meet the emergencies of trade after the mills had closed. The failure to close has made the market weaker than it was and still further shattered the confidence of the large consumers. While there has been little disposition to buy in large quantities for some time, there is even less now. Buying in carload lots is, and has been, discouraged by jobbers generally for more than a month past, and the major part of the business recently has been in less quantities. For carload lots, \$2.85, 2 % 60 days, is named, and for smaller orders, \$2.90. The market is feverish and prices cannot be regarded as firm, though there is being a strong effort made to prevent any further fall in figures. Whether this effort will be successful is an open question to-day, and jobbers are unwilling to predict even the probabilities.

American Pig.—The Pig Iron market is less buoyant than it has been for several weeks. While there is no visible or direct cause for it, it is a fact which furnace agents are slow to admit. There is an ordinarily good demand, but the market lacks the life and vigor which characterized it several weeks ago. The sense of the market indiweeks ago. The sense of the market indi-cates that the recent failures and general depression of trade and the decline in prices in the East are being felt, and that con-sumers have again lost confidence in the stability of values, and have, for these reastability of values, and have, for these reasons, withdrawn from the market for anything except immediate wants. Shopping appears to be in order and for lots of 100 tons or more; from the number of inquiries, it would seem that every furnace agent in the city is asked to bid. Stocks are in pretty good supply except in Charcoal and Southern No. 1, which are still scarce. Prices are No. 1, which are still scarce. Prices are firm and obtained freely on small quantities. We quote the following prices, 4 mos.: Lake Superior Charcoal, Nos. 1 and 2, \$23; No. 3 Superior Charcoal, Nos. I and 2, \$23; No. 3 at \$23.50; No. 4 at \$25, and Nos. 5 and 6 at \$24; Lake Superior Coke at \$21 @ \$22; Lake Superior and Ohio, mixed, at \$22; Ohio Standard Black Band, No. 1, \$23 @ \$24; Southern, No. 1, at \$22, and No. 2 at \$21; Silvery Soft at \$19.50 @ \$22; Anthracite, No. 1, at \$22, and No. 2 at \$21. For roo-ton lots immediate Chicago delivery, the followery the followers. lots, immediate Chicago delivery, the fol-lowing cash prices are quoted by furnace sales agents :

Briar Hill.
Iron River.
Himrod, No. 1
Rockwood, No. 2.
Sloss Silvery, open.
Briar Hill Scotch.
Deer Lake Iron, Nos. 1 and 2.
Fon du Lac.

Scotch Pig.—In the way of sales, the market for Scotch Iron is quiet. There is more interest manifesting itself in regard to winter supply than in the present condition of the market. What there is on hand is held firm, as follows: Coltness, \$29; Sum-merlee, \$28, and Glengarnock, \$28; these prices are for cash, and, it is said, cannot be discounted.

Merchant Steel .- The Steel market is without change in any particular. Prices are hammered at and cut in every conceivable shape, and numerous qualities and brands are brought into competition so strongly that it is difficult to do any trade, at living profits in the higher and established grades. The demand does not improve, and what there is comes in small orders only. We quote as follows for standard brands: Refined Cast Steel, 10½¢ @ 11½¢ P B; Crucible Machinery, 6½¢ @ 7¢; Bessemer and Openhearth do., 4½¢ @ 5¢; Steel Boiler Plate,

Steel Rails .- The market is without being quiet for the season. Mills, have enough small orders coming in to keep them running, but nothing of importance for the future beyond a few inquiries, which appear to be made from curiosity rather than with a view to business. We continue our quotaa view to business. We continue our quota-tions, nominally, in the absence of more definite information, at \$39 @ \$40, f.o.b. Chicago

Old Rails .- There seems to be an abundance of old stock in the market for present consumption. Mills say they have no difficulty in supplying their wants at \$20 @ \$22 for Old T's, Chicago delivery.

Bar Iron.-The demand for Bar Iron is being fairly sustained. The shipment for past week has been perhaps a shade cer, but, viewing the different branches of the Iron trade in comparison, it has been a fair week's business. Consumers are attaching some importance to the unsettled condition of Crude Iron, and not ordering quite so freely as during the first part of the month, but supply their wants in smaller quantities and more frequent orders. Refined Iron is quoted firm at 2.1¢, from store, with the usual concessions for large orders and desirable specifications.

Builders' Iron.—Builders' Irons have less called for during the week than perhaps any other class. The weather being so bad as to exclude all out-door work has had, no doubt, more influence upon the market than anything else. Prices remain about the same. We continue to quote about the same. We continue to quote Tank, 2.7 %; Angles, 2.9 %; Beams, 3.6 %, and Channels, 3.6 % @ 3.8 %.

Black Sheets.-The trade in Black Sheets is not encouraging. The demand is light, though better than in the early part of the month. We continue last week's quotations For No. 24, \$3.50; Nos. 25 and 26, \$3.60 These prices are fairly main

Scrap Iron.-The Scrap Iron market is without tone and well supplied with stock. Furnacemen are not purchasing freely, and find no difficulty in getting what they want. There appears to be considerable stuff offering and taken by dealers. We quote the followand taken by dealers. We quote the following as dealers' purchasing prices: No. 1 Wrought Scrap, & net ton, \$17; Cast Scrap, ton, \$15; No. 1 Stove Plate Scrap, & ton, \$10; Wrought Turnings, & ton, \$9; Cast Iron Borings, \$6; Old Plows and Plow Steel, \$10; Malleable Scrap, \$5.

EVERETT & Post, 156 Lake street, Chicago, report to us as follows, under date of October 27, 1883: Pig Lead.—The past week has shown no improvement in Pig Lead. Values are entirely nominal at \$3.92 and \$3.92½, Chicago. There have been but few \$3.92½, Chicago. There have been but few transactions; sales will not aggregate over 300 tons Common and Refined. Connellsville Foundry Coke,—Since our last the market has ruled very firm—Frick's at \$5.15 @ \$5.25 ton, Chicago. Outside Cokes from around the Connellsville region are offering at \$5.10 @ \$5.15 \$\text{ ton, Chicago.} The demand continues very good and the outlook very promising for a large business through the winter.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., ECHATTANOGA, Oct. 29, 1883.

The cool weather of the past week has had a stimulating effect on trade in woolens and clothing. It has also helped the Coal dealers. Cotton continues moving satisfactorily, the figures: present pace being sufficient to put the entire Ref. Bar crop into second hands by the first of January. Prices do not improve as rapidly as was expected, the news from the fields showing the crop will be considerably larger than was estimated by the best-informed dealers. Dealers and builders in all the Southern cities find difficulty in getting seasoned lumber for their trades. The streams are very low for the time of year. Furnaces and other industries depending on water transportation for supplies are seriously embar-

Pig Iron.—There is a general feeling in this district among producers not to make concessions on present quotations. This means that if buyers will not take metal at these prices production will be shortened until rates are forced to a higher plane. Some lots of the meanest quality have been sold slightly below the average cost of production—though these are exceptional bills and of no great size. We quote No. 1 Foundry, \$19 @ \$20; No. 2 Foundry, \$18 @ \$19; Gray Forge, \$16 @ \$19; White and Mottled, \$14 @ \$15; Car-wheel Metal,

Ores.—We quote 50 % Brown Hematite, ?? ton, \$2 @ \$2.75; Red Fossil, \$2 @ \$2.25, delivered at furnace.

Miscellaneous Articles .- Old Rails are steady at \$21 @ \$22, with slim stocks. Scraps are unsought, except best lots of Wrought. Wrought Scrap, \$18 @ \$22; Cast Scrap, \$11 @ \$14; Old Wheels, nominal, \$22.

Nails.—We quote them steady at \$2.75 for large bills, 60 days, 2 % off for cash; job lots, 10¢ @ 15¢ higher. Merchant Iron .- Bar is in fair request

at \$2 @ \$2.10 for assorted large bills; Bolts, \$3 @ \$3.20; Spikes, \$2.60; Splices, \$2.

Coal.—We quote Fancy Lump, \$3; Com-\$1.50 at mills. Coke.-We quote Furnace Coke, \$3 at

point of consumption; Foundry, $10 \notin @ 12 \notin \mathbb{R}^2$ bushel.

LOUISVILLE.

GEO. H. HULL & Co., Commission Merchants, report as follows, under date of Oct. 27, 1883: There is no animation in the Pig Iron market. The amount being consumed is large, and manufacturers are buying to cover their wants, which, in the aggregate, create a very satisfactory business as to quantity, but prices continue very low:

FOUNDRY IRON.	
No. 1 Hanging Rock Charcoal	\$23,50 @ 24,50 21,50 @ 22,00
No. 1 Southern Stonecoal and Coke	19.50 @ 20.50 19.50 @ 20.00 18.50 @ 19.00
"American Scotch" Open Silver-gray Close	18.00 @ 19.00 17.50 @ 18.00 16.50 @ 17.00
MILL IRONS.	
No. 1 Charcoal	19.00 @ 20.00 17.00 @ 17.50 16.50 @ 17.00
No. 1 "Cold-short.	16.50 @ 17.00 16.00 @ 16.50
White and Mottled, Cold-short and Neutral	15.00 @ 15,50
CAR WHEEL IRONS.	
Hanging Rock, Cold-blast	30,00 @ 31.00 28.00 @ 24.00

W. B. BELKNAP & Co., Iron and Steel Merchants, Nos. 115 to 121 West Main street, report to us as follows, under date of October 26, 1883: Bar Iron is stationary, for, while the demand has slackened somewhat, the was already so low that much further shrinkage was out of the question. A good many odd lots have been cleaned up by special offers, and the stocks at the mills are ery light, as is indicated by the difficulty in getting a large assorted order filled with any degree of promptness. We ourselves are just getting in the last of a lot con-tracted for strictly September delivery. We do not anticipate any improvement, how-ever, till the latter part of December or 1st of January. Sheet shows improved demand as cold weather approaches. *Nails* are "pegged," as the stock jobbers express it, and the mills seem disin clined to yield fur Galvanized Iron. -The demand for this ther, though, if they run full and the demand class of Iron remains about ordinary. There is no inclination to force sales, and nothing on the consumers' side to induce heavy purchases. Prices are held pretty firm. Juniata is quoted at 45 and 5 % off, as heretofore.

ther, though, if they run full and the demand does not improve, we can hardly expect other than a weak market. Wire.—There is a constant tendency toward lower prices, and there is not the same wide difference between licensed and unlicensed Barb Wire. General trade is fair in the way of small

country orders and for city work. There is a good deal of building and repairing going ent, as I showed very conclusively in my last tained, and are not unlikely to advance still on. Materials are certainly cheap enough to induce it. The work on the Sand Island bridge, which is to connect New Albany with this city, is in progress, though not much can be done this season.

CINCINNATI.

OCTOBER 29, 1883.—Pig Iron.—During the past week about the usual trade has been maintained, and at about former prices. No transactions of any considerable magnitude have been reported. Several of the Hanging Rock Charcoal furnaces now in blast will blow out in November and December, not to resume work till more encouraging prices obtain. Some of the prominent Stonecoal furnaces in the same region are stocked and ready to blow, but will not till the future is more promising. Quotations for the past week are as follows: Best No. 1 Hanging Rock Charcoal Foundry, \$24; Good No. 1, \$23.50; No. 2, \$1 less; Southern Charcoal, \$20 @ \$22; Southern Coke, No. 1, \$10 @ \$20; Warm Blast, \$25 @ \$27. Forge, \$16.50 @ \$21 for range of Stonecoal, Coke and Char coal kinds.

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of Oct. 29, 1883: Trade continues ruling much the same as last reported—that is, quiet and depressed, with values weak and undersold at annexed

	-Baron I
	Ref. Bar Iron, 1 to 6 x % to 1 @ 10 2 1-10 @ 2 2-10¢
	" 1 to 416 x 136 to 1 2 to 2 1-10 @ 2 2-10¢
	and Square
	Hoop Iron, 116 wide and upward " 8 @ 31-10¢
	Band Iron, from 116 to 6 in. wide " 216 @ 2 6-10¢
	Horse-shoe from
	Machinery Steel 444 65 5
	Spring Steel " 4 @ 414 c
	Common Horse Nails " 10 @ 11 e
1	Railroad Spikes, 51/4 x 9-16 " 2 6-10 @ 2 7-10¢
I	Perkins' Horse Shoes, & keg of 100 b\$4.37\\(\frac{4}{2}\) Mule Shoes
1	P. C. W

R. C. HOFFMAN & Co., Pig and Railroad Iron Merchants, 21 South Frederick street, report us the following, under date of Oct. 29, 1883: The Iron market is without material change, while sales are in small lots. They aggregate quite large, and fairly up to the ordinary demand for this season of the year. We quote prices about as follows:

Baltimore (Charcoal	W	he	el	Ir	101	n	(1	all			
Baltimore	Ore)									\$28,00	60	29,00
Virginia C.	B. Wheel	Ir	on.							28,00	GE	29.00
Anthracite,	No. 1									21.00	60	28,00
44	No. 2									20,00	a	21.00
44	No. 3									17.00	00	19,00
6.6	Mottled a	and	W	h	ite	١.				15,00	(B)	16,00
Charcoal C.	B. Bloom	ns.								50,00	60	55,00
Refined Blo										40,00	0	45,00

ST. LOUIS.

HOFFER & Co., Pig Iron and Iron Ore Merchants, 214 Pine street, report to us as follows, under date of Oct. 27, 1883: There is some little inquiry for Red Short Mill Irons, but little for other grades. We continue quotations:

HOT BLAST CHARCOAL IRGNS.

	Missouri \$20,00 @ Southern 20,00 @ Ohio 25,00 @	21 00
)	COAL AND COKE IRONS.	
	Missouri	20.00
	MILL TRONS.	
	Red Short 18,50 @ Neutral 17.00 @	
	CAR WHEEL AND MALLEABLE IRONS.	
	Missouri. 21.00 @ Southern. 25.00 @ Ohio. 23.00 @	28.00

RICHMOND.

ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows, under date of Oct. 29, 1883: There is nothing of special note to report on the Iron trade. The market is quiet and sales are slow. prices are as follows:

No. 1 Scotch Pig Iron	\$23,00 @ 26,00
No. 1 Anthracite Pig Iron	22.00 @ 22.50
No. 2 " "	20.00 @ 23.00
No. 3 " "	19,00 @ 22,00
No. 1 Virginia Coke Pig Iron	20,00 @ 21.00
No. 2 4 4	18.00 @ 19.50
No. 1 " Mill Pig Iron	16,50 @ 18,50
Virginia C. B. Charcoal	82,00 @ 85,00
Old Rails	24.00 @ 25.00
Wrought Scrap No. 1	20,00 @ 21.00
Cast Scrap, No. 1	18.00 @
Richmond Refined Bar Iron, & th	2 2-10¢
Horse Shoes (Tredegar), Wkeg	4.00 @
Mule " " "	5.00 @

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From Our Regular Correspondent) LONDON, ENG., Oct. 15, 1883. THE SITUATION

s still very much as it was when I last wrote. although there is in some quarters a disposi-tion to regard certain branches of the iron trade as being somewhat firmer. That tone is, I think, to a slight extent justified by certain factors now obtaining, but it is in no sense an outcome of an improvement in the demand. Such as it is, indeed, the tentative firmness is caused by the unsettled condition of the labor market, which has given, and is giving, some of the ironmasters an excuse for trying for higher values. I use the word in no offensive sense, but simply because I am unable to perceive any valid reason for putting up prices. The min threaten to strike, but they have not turned out, and there is an air of unreality about their agitation which leads me to con-

week's letter. It follows, therefore, that if the men persist a dispute is inevitable. not even served the requisite notices. Whether and when they will do so remains to be seen; then, also, will it be made apparent whether they mean to fight or to make a sham of the attempt. In the meantime there is an element of uncertainty which is not beneficial to business, particularly as the organization of the miners is believed to be better than that of their employers, although the masters are in funds, while the men are avowedly short of money. The ironworkers have not yet been disposed of as to wages under the sliding scales, but it is hoped and expected that the current adjustments, both in Staffordshire and the North of England. will be effected in a peaceable manner. two or three works here and there the men have tried to make trouble, but up to this writing there has been no dispute of real noment at any iron or steel works.

THE IRON MARKET

has not undergone any special change since my last report, yet there is a disposition manifested in some quarters to regard the market as being a trifle steadier. The in-fluence of Glasgow may be traced in the matter, but as the rise in warrants there has been brought about almost exclusively speculative operations, it would be unwise to place much reliance on the course of events on the Glasgow Exchange. What is more to the point is a certain reduction of the output in Scotland, owing to the stoppage of several furnaces, coupled with which is a partial strike of the miners. To the fear that this dispute may spread may be at-tributed the recent buoyancy of Scotch warrants, and a similar reason with respect to the miners of this country has had, and is still having, weight with the ironmasters of other localities. The colliers have confirmed and emphasized their tentative resolutions on the subject of the proposed advance in wages of 15 per cent., but up to the time of this writing they do not appear to have formulated their demands. At Glasgow warrants have been somewhat irregu-lar, but have been largely dealt in at higher prices than those recently ruling, and closed to-day at 46/6 \$\mathbb{H}\$ ton. Makers' brands of Scotch Pig are mostly 6d. \$\mathbb{H}\$ ton higher, and are in good request for home and shipping purposes. At Middlesboro' the reduction in stocks during September and other considerations have tended to give the market rather more superficial firmness, but prices may be quoted for No. 3 Foundry at 39/@,39/3, with makers stiff on the higher value. Shipments are good and the local consumption is fairly sustained. On the West Coast there is no change whatever to report, either in respect of values or the volume of business, mixed parcels in usual proportions being still 48/@49/6 P ton. The make of hematite pig iron seems to be ahead of the wants of the market, and stocks are sufficiently large to prevent any rise in prices. Elsewhere crude irons are quiet and nominal. Lilleshali and Staffordshire all-mine sorts are 62/6 @ 65/, while call blatt are 20/6 @ 65/. while cold-blast are 82/6 @ 85/; Stafford-shire common pigs are 40/ @ 42/6 and other common brands about as of late. Of heavy manufactured iron the output con-tinues large, but orders for ship plates are scarce and few new orders are about. In this connection it is of interest to note that a new vessel for the Cunard Line is to be built entirely of steel Boiler plates are in steady request, and armor plates are being produced to the extent of the full capacity of the mills and machinery. Fencing wire is 20/? ton lower, but the German manuis 20/ ft ton lower, but the German manufacturers have filled up of late, and so lessened the severity of their competiton. The quarterly meetings of the ironmasters held at Wolverhampton and Birmingham during the week have been well attended. As I anticipated would be the case, there has been no official alteration in the list prices of marked bars, and finished iron of all sorts may be said to remain unaltered—nominally, at all events. Marked bars, therefore, are still £7. 10/, with the usual 12/6 extra for Lord Dudley's Round Oak iron. Medium bars are plenti-28. 10/, and trebles £q@£9. 5/, with £11 for "Severn," and prices pro rata for other brands of repute. Strips and hoops are in moderate demand. In iron rails there is nothing new to report, while old rails are in rather better request for the States and Italy. Heavy wrought scrap is 55/@ 56/? ton, f.o.b. London. Freights are a shade easier, pig iron by ordinary steamers, Glasgow to New York, being now 6/ P ton, and from Liverpool about 5/ P ton. For tin plates from the latter port to the States special rates below the 10/ nominally quoted are said to be freely offered. Steel is quiet for the most part, the Sheffield crucible-steel manufacturers having only a moderate amount of business on hand. The Bessemer concerns are tolerably active, and the producers of mild steel fully engaged. Old railway leaf-spring steel is called about 67/6, f.o.b. London, &c., and American buyers offer 74/ \$\mathbb{P}\$ ton, c.i.f. New York, at which some lots have been sold. Steel rails remain dull at about late rates. The few orders about are keenly competed for by the orders about are keenly competed for by the various makers. I call ordinary flange sections, 50 pounds ?? yard and upward, £4. 15/@ £5 ?? ton, but those prices are quite nominal.

SCOTCH PIG IRON

has been rather irregular during the week, although a considerable turnover was effected in warrants in the early portion thereof. Since then there has been a decline under the influence of "bear" operations, and despite a very marked decrease in the number of operative furnaces. This decrease clude that they will consider their chances over two or three times before they risk an open rupture. If the coal owners are honest and candid in their statements, they are

further. In Connal's stores the quantity is Lanarkshire and Fife several thousands of the Scotch coal miners have already gone out, but the example thus set has not yet been followed in England or Wales—in fact, the miners here and in the principality have not even served the requisite notions of Middlesboro pig iron into Scotland 589,169 tons (an addition of 6 t on a total of 505,637 tons, while importa-tions of Middlesboro' pig iron into Scotland are 20,818 tons ahead on a total of 202,385 tons. Writing from Glasgow on October 12, James Watson & Co. said: "The advance in price of Scotch warrants, which we reported in our last circular, has been in a measure lost during the last week, not withstanding the fact that more furnaces have been damped down or blown out. The number in blast to-day is reported to be The number in blast to-day is reported to be 94. The demand for special brands is quiet and quotations a shade easier. The warrant market last Monday declined from 46/9 to 46/6½ \$\foralle{2}\$ ton. On Tuesday forenoon it again rallied to 45/11, relapsing in the afternoon to 46/9½ \$\foralle{2}\$ ton. On Wednesday the market was irregular, with a fair business done between 46/8 and 46/10, and yesterday it was steady between 46/10 and 46/9, cash. To-day the market was flat, the price declining from 46/8½ to 46/6, cash, closing with sellers at the latter figure. The shipments last week were 12,023 tons, as compared with 12,495 tons for the corresponding week of last year."

We quote:

we quote:			No. 1.	No. 8.
G. M. B., at	Glasgow	 	48/	46/
Clyde,	46	 	49/9	47/6
Coltness,	8-6	 	58/	52/
Langloan,	6.6	 	58/	52/
Gartsherrie,	4.6		55/	562/
Summerlee,	44	 	56/8	50/3
Calder,	66		57/	49/
Carnbroe.	6.6		54/6	49/
Glengarnock,			54/6	47/6
Eglinton,	6.6	 	48/6	45/8
Dalmellington	n. 64		48/6	47/6
Shotts, at Lei		 	58/	58/6
Kinneil, at Bo			48/6	47/6
Carron, at Gr			49/	47/8

IN THE TUBE TRADE certain movements are on record which seem to show that a process of reconciliation is being tried, with a view of bringing actual selling prices into closer accord with the nominal discounts of the time being. These discounts, I may as well explain, are as

under																									
Boiler Gas	tubes,	la	p-	W	re	de	đe	91	1					,	 								.55		9
Gas Galvar	46		-61															۰				۰	.723	ŝ	9
un	ings			0.1						۰	0	*	 	 		0		 *	*	,	,		.773	£	9
Galva	nized gr	84	tı	ıb	æ	13	. ,					٠				r		*				×	.57%	£.	2
Steam	tubes.									۰			 		 								.573	ŝ	7
66	fittings	١												 	 ,				٠,	٠,			.6834	£.	9
Water	tubes.								w.	ú.		, .	 		 		,						.65	п	j
66	fittings	H																					.70		ġ

In order to maintain and enforce these prices two associations were formed some one being for gas tubes and the other for boiler tubes, those being the two chief departments of the business. The gas-tube branch, like the other, was apparently well organized, and the great majority of the manufacturers in England and Scotland joined the association, and subscribed to the rules and regulations, which provided for a heavy penalty in case of underselling. In order to render the arrangement the more secure, the leading makers in Westphalia were also induced to enter the combination, so that its prospects seemed exceptionally good, and it was thought that the whole affair had been settled on a sound basis. some months all went well, and, with a fairly brisk trade, everybody was satisfied. Then business became dull and it was difficult business became dull and it was difficult to get orders. Many of the manufacturers found they could not obtain a single coumission from buyers, and presently suspicions became aroused as to the channel in which everything on hand appeared to fall These suspicions were speedily confirmed, when it was ascertained that the association discounts were being systematically under discounts were being systematically under-quoted by outsiders, in London and else-where. The result was that the association where. The result was that the association virtually went all to pieces, although not a single member would confess that he was underselling. The German makers withdrew, and lists were circulated all over the country offering gas tubes at 75 %, 77 1/2 % and even 80 % off the list. It was hinted that certain merchants had been instrumental in bringing about this demoralization. Some of them had special terms for export and had sold the tubes at home, while gthers had got at some of the smaller producers, who virtually reduced prices by giving brass castings, &c., with the tubes, while invoicing the main article at the proper discount. In other instances various devices were Round Oak iron. Medium bars are plentiful at £6. 10/ @ to £7. 5/, working-up bars at £6. 26. 2/6, and ordinary Welsh bars at £5. 6/3 @ £5. 7/6 \$\frac{1}{2}\$ ton. Sheets are in good request, a stronger call being reported from the galvanizers. Ordinary sorts are £7. 15/ @ £8, doubles £8. 5/@ £5. 10/, and trebles £9 @ £9. 5/, with £11 for \$\frac{1}{2}\$ tor. Sheets are \$\frac{1}{2}\$ to \$\frac{1}{2 the cutting and underselling went on, until the game has at length almost played itself out, and those who have taken a prominent part therein are anxious for a cessation of hostilities. Nominally the association is as sound as ever, whereas in reality it is hol-low and unworkable. The German makers are reported to have had more than enough of the fighting, seeing that they have been beaten on their own ground by some of the British houses. They are willing, therefore, to rejoin the International Association, and their proposition to that effect will be dis-cussed at a meeting to be held at Birmingham during the present week. At a preliminary meeting, held on Thursday last, the attendance was so poor that an adjournment was necessitated, which would seem to show that complete harmony does not reign as yet in the business. The simple truth is that these associations are good and workable when trade is brisk, but fall to pieces directly there is a lull in the demand.

THE CALCUTTA EXHIBITION promises to be a great success in all respects.
According to a "special" in the *Ironnonger*,
the total space to be be covered will be about
400,000 square feet. Of this, Great Britain has engaged 100,000 feet, India over 70,000 feet and the Australian Colonies about 23,000 feet. The machinery annex will cover 40,000 square feet. It is expected that everything will be in order by the date (December 4) fixed for the opening, and Mr. Joulert be-lieves it will be in all respects a striking success. It is stated that 500 Americans have done a smart thing by chartering the City of Rome steamer, not only for their passages,

IX: IX: IX: CO C S VI Ing Ing Bra 16 Bra W

All Notes and All Notes and All Notes and All Notes and All Sheets assess than

14 an

WHOLESALE METAL PRICES, October 31, 1883.

METALS.

| RON. — DUTY: Bars, 8-10¢ to 11-10¢ 製 巻; provided that no Bar Iron shall pay a less rate of duty than 35%. Sheet, 11-0¢ to 15-10¢ 製 巻. Band, Hoop and Seroll, 1¢ to 14-10¢ 製 形. Railroad Bars weighing more than 25 む 製 yard, 7-10¢ of 1¢ 製 形.

Fray Forge | \$\psi\$ ton | \$18.00 \(\begin{array}{c} \) 19.00 | \$\psi\$ ton | \$\psi\$

Wrought, \$\psi\$ ton, from ship and yard. 23.00 @ 24.00

Har Iron from Store.

Common Iron:
\$\%\$ to 1 in. round and square... \$\psi\$ 2 @ 2.10\$

1 to 6 in. x\gamma\$ to 1 in... \$\psi\$ 2 @ 2.30\$

1 to 6 in. x\gamma\$ to 1 in... \$\psi\$ 2 2 @ 2.30\$

1 to 6 in. x\gamma\$ to 1 in... \$\psi\$ 2 2.30 @ 2.30\$

1 to 6 in. x\gamma\$ and 5-10... \$\psi\$ 2 4.0 @ 2.50\$

Rods.-\gamma\$ and 11-16 round and sq. \$\psi\$ 2.30 @ 2.40\$

Bands.-1 to 6x3-16 to No. 12... \$\psi\$ 0.260 @ 2.70\$

Norway Nail Rods... \$\gamma\$ 5 3\gamma\$ Sheet Iron.

| Sheet | Iron | Common | American | America

American Cast Steel.
For American Steel, see Pittsburgh quotations. English Steel,

Best Double Snear Blister, 1st quality German Steel, Best. 2d quality 3d quality Sheet Cast Steel, 1st quality Sheet Case Good, 188 quanty
2d quality # 5 14444
3d quality # 5 1244
TIN.—Dury: Plates, Sheets, Tagger and Tene,
14 # 5 ; Bara, Block and Pigs free. ree.
.ph n 23 @ 23/46
.ph n 21 @ 23/46
.ph n 21/4 @ 23 6
.ph n 21/4 @ 23 6

Charcoal Tin Plates. Coke Tin Plates.\$5.75 \$5.25 @ \$5.50

Terne Plates.
Char. 2d. quality Coke.

| Ingot, Baltimore | Braxiers Copper, ordinary sizes | 16 oz. \$\psi\$ and over | 20. \$\psi\$ | \$\psi\$ |

O'Neill's Patent Planished Copper,-Net.

Copper Wire, -(See Wire.) Sheathing Metal.

BRASS AND GERMAN SILVER. Brown & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire, BRASS MANUPACTURERS' PRICE LIST.—DIS, 35 ≤ For less quantity than 100 B, add 3 ≠ ₩ B.

Sheets	rs' Rules.	40 in	and and	OVE	der -	10 in		47
Circul	ar sheets, i	n dian	i. from	n 4 i	in. to	14 in	clusiv	ve.40
	6.4	6.6	over		6.6	20	6.6	.45
	4.5	6.6	6.6	20	6.5	90	6.6	.49
	6.6	6.6	4.6	30	5.6	40	6.6	.55
	0.0	6.6	6.6		in			
Guain	cents \$1 fb g Metal 8¢ 's' or Gold	more to	I Sav	Hiz hai Bar wed nec	h Brandia n High	ass. gh Bi	rass.	45

Rubing.—Dis. 30 %.

Plain to No. 30, inclusive, above ¼ in. to 3 in. \$0.43

"above 3 in. 53

Nos. 21, 22, 23, 2¢ advance on List for each Number.
Nos. 24, 25, 26, 4¢ advance on List for each Number.
Above No. 26, special rates.

Plain ¼ in. \$0.70

"3-16 in. 1.10

"4 in. 1.00

All Mandrel Drawn Tubes, 5 cents advance on List Prices,
Fancy Tubing to No. 20.
English, Scotch and Extra Patterns Fancy Tubing to No. 30.
Tubing Sawed or Cut 2 to 4 feet long, 2¢ advance on List.

vance on List. Add 2¢, 136¢ for each additional cutting under to 2 feet.

All Mandrel Drawn Tubes under % in., 25¢ P

B advance. Miscellaneous, -Dis. 30 %.

High Brass. Scrap,—Net. Terms—Net casn. thirty days.

Brass Wire.—See Wire.
Tubing.—di

| German Silver Tubing, dis 30 %. | 4 per cent. | \$0.80 | 15 per cent. | 50 per cent. | 9 per cent. | 1.00 | 18 per cent. | 12 per cent. | 1.20 | 20 per cent. | 20 per German Silver Market Metal and Wire.

 NICKEL.
 № \$1.00

 Metallic, in grains.
 № № \$1.00

 Metallic, in grains, № 100 № lots.
 1.05

 Metallic Anodes
 \$1.35 @ 1.40
 | Metallic in grains, \$\(\psi \) 10 b lots | 1.05 | Metallic Anodes | \$1.35 \infty \infty \) 1.05 | Metallic Anodes | \$1.35 \infty \) 1.06 | Nickel-Plating Materials | \$\(\text{Composition, Cutting in bbls} \) | 0.07 | Composition, Emery Cake | 0.07 | Composition, Emery Cake | 0.07 | Composition, White Tripoli | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1 ANTIHONY.

Tinned Sheathing, 14x28, 14, 16, 18 08. 18 0dis. 50 × Cast Steel, Steel Wire list..... Brass and Copper Wire.

Brass and Copper Wire.

Dis. 30 @ 35 %.
Gi
High Brass. Low Brass.
No. 0 to 20 \$0.33 \$0.37

No. 21 36 40

No. 22 37 41

No. 23 38 42

No. 24 40 44

No. 25 43 47

No. 25 45 49

No. 27 48 52

No. 28 56 50

No. 29 56 69

No. 30 58 69

No. 31 62 66

No. 32 66 70

No. 33 70 74

No. 35 70 74

No. 35 70 74

No. 35 70 74

No. 35 70 74

No. 36 70 74

No. 38 70

For less quantity than 100 B, and 30 B B.

High Hrass.

All Nos. not thinner than No. 28, wider than 2 in. not wider than 14 in.

All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive.

All Nos. to No. 28, inclusive, and widths over 20 to 30 in., inclusive.

Brass Rods, No. 8 and larger, not less than 2 ft. lengths, 286.

Wire straightened and cut, smaller than No. 8 inclusive.

All Brass thinner than No. 38 is Platers' Brass, at 586 inclusive.

All Brass thinner than No. 38 is Platers' Brass, at 586 Sheets 24x88 in., and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in.

Twelve cents 28 b extra for spooling on 1 2 spools waste. No. 2 Colored.

Waste No. 2 Clored.

MISCELLANEOUS TINNERS' STOCK. Solder. Rivets. Stove Bolts. . dis. 50 g . dis. 45 g . dis. 50 g

American Screw Co.'s.
R. B. & W.
R. & E. Mfg. Co. Prices current per box of 50 feet. List, July 2, 1883. Single.

\$13.50 \$11.50 \$10.75 \$10.25 14.51 13.50 12.50 11.50 18.50 17.00 15.50 14.00 18.50 18.50 16.25 22.00 20.00 17.50 24.00 22.00 18.50 25.00 24.00 20.50 27.00 25.00 21.50 29.00 27.00 24.00 31.00 29.00 26.00 35.00 31.00 29.00 35.00 31.00 29.00 Double. | 1st. | 2d. | 3d. | 4th. Sizes. 6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 22 to 20 x 30. 15 x 36 to 24 x 30. 26 x 28 to 24 x 36. 26 x 28 to 24 x 37. 26 x 36 to 36 x 44. 26 x 46 to 30 x 50. 30 x 52 to 30 x 54. 30 x 56 to 34 x 56. 34 x 58 to 34 x 60. 35 x 60 to 40 x 60. \$17.50 \$15.00 \$14.00 \$13.00 \$17.50 \$15.00 \$14.00 20.00 18.00 16.50 24.00 22.00 20.00 38.50 24.00 23.00 30.00 28.00 23.00 30.00 28.00 24.00 35.00 31.00 27.00 35.00 31.00 27.00 35.00 34.00 37.00 45.00 40.00 37.00 45.00 40.00 37.00

Sizes above—\$15 per box extra for every 5 inches. An additional 10 per cent. will be chared for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the united 84 inches bracket.

Discount, 60 and 20.

PAPER STOCK, &c.

(Dealers' Selling Prices.)

73-6 53-6 63-4 33-8 3-9-6 43-6 43-8 13-4 90 33-4 13-4 13-4 13-4 13-4 13-4 White Shirt Cuttings, No. 1.

Mill Assorted Whites.

Unbleached Muslins.

City Whites, No. 1.

New Canton Fiannels.

New Seconds, tight.

No. 2 Whites.

Cotton Canvas.

Lines Canvas No. 1.

Seconds, City No. 1.

Seconds, City No. 1.

Seconds City No. 2.

Seconds City No. 3.

Cotors, et c.

Manila Rope.

Gunny Bagging No. 1.

No. 2.

Kentucky Bazzing. Gunny Bagging No. 1
No. 2
Kentucky Bagging
Burlap Bagging No. 1
Tar Snakings
Hemp Twine Stock
Hard White Shavings, No. 1
Soft White Shavings, No. 1
White Shavings, No. 2, Soft
Mixed Shavings, Part White
Ledger and Writing
Solid Stock
Book Stock, No. 1, light
Old Newshapers
Pure Manilas
Bogus Manilas and Hardwares
Commons, per 100 lbs.
Sinder's Hoard Cuttings

PAINTS, OILS, &c.

			aints.				
	Canal						
Black Lai	Ordina	n Pa	inters			33 (6	240
" Ivor	mp - Coacl Ordina y Drop, fa	ir		******		.12 @	150
Binek Pal	nt. in oil.	DOBL	kegs. 8	c : asse	orted	CATA	110
B'ue, Pru	int, in oil.	to b	est			.40 6	550
· Chin	COST CLEAN						- 7CC
" Ultre	amarine panish panish panish panish panish in oi in oi t. Bright Brown Purple Ground Panish Paints ineral		**********		******	. 18 @	1300
" Va	n Dyke		******			10 @	120
Green Ch	in of	1			14 @	18 @	250
" Par	ris			goo	1, 20;	best,	250
tron Pain	t. Bright	red.	*******		, 300 ;	P B	2540
10	Brown		*********	******	*****	64	1390
.00	Ground	in of	Bright F	led		66	6100
	94	80	Red		*****	6.6	5390
	0.0	04	Purple			44	5390
Mineral !	Paints					26	B 40
Orange M	ineral , America itian (Eng.				* * * * * * *		. Toe
" Vene	tian (Eng.) dr	y		6	5 6 8	1.70
80 88	in oil		asat	'd cans	, 110 1	keg	s, 8c
" India	merican i urnt power in oil.					9 @	130
denna, A	merican l	Raw	powdere	d			4C
" B	urnt powe	iere	l		******	122.2	4160
" R	5W				11 @	15 @	200
Dimber.	Hurnt, pov	water	WHILE			. 4 4	ii. Ho
14 TD	aw, powd	ered	**********		9 @	12 6	160
40 1	in oil				10 @	16 6	180
Vermillio	D, Chinese	0					- 200
	Americ	an. (common	******		40 (8	1.6
White Lea	in oil b. Chinese English Americ ad. Ameri ris. Englis chre, Fren	can,	pure dry	m of		536006	14°C
White Pa	ris. Englis	h p	tme in b	bis		2 (4)	2160
Yellow Oc	chre, Fren	ch .		******			4.75
80	ii Vern	nent	Oltnan	d can	in ca	Kegs	1,80
Yellow Cl	Vern hrome in of ce, Americ French (.17 6	270
Z no Whit	in of	on B	o t dev.		14 @	18 @	250
**	15		o. r, in oi	1			9C
**	French (Pari	s dry)			8 @	100
Linseed, F	Raw, in ca	aks	ano bbls.			£7 (6)	såe
B	lotted	0.0	6.0			60 (%	916
Rieached	Whale.	lan				50 14	590
11	Sperm	B. co.				8	. 30
Stonel	Raw, in ca loiled Calcutta Whale, # Sperm Elephant					0000.0	70
Prime La	ect						670
No. 1 Extr	inia		*********	******		*****	630
Drilling							AOE.
Miners' O	ressed					42 @	450
Nearafoot	ressed					70 %	47C
Tallow	linder Oi					70 66	750
Empire Cy	viinder Oi	l					400

Machinery Engine.....

HERMANN BOKER & CO.,

PROPRIETORS OF



VISE & TOOL WORKS.

PICKS, MATTOCKS, CRUB HOES, HAMMERS. WROUGHT IRON STEEL FACE

(P. W. PATTERN.)

"FULLY WARRANTED."



Sole Agents for H. Boker & Co.'s Celebrated "Tree" Brand Cutlery R. Heinisch's Sons Unrivaled Shears, Trimmers, Scissors, Japanned and Nickeled, Gardner's 1881 Razors. Ward & Payne's Sheep Shears.

J. W. Gardner's Unequaled and "Warranted Superior to All" Barlows, Pocket and Table Cutlery.

Geo. Wostenholm & Son's, Wade & Butcher's, Trenton, and O. K. Pocket Cutlery and Razors.

Jno. Wilson's Butcher Knives, Steels and Shoe Knives, New England Cutlery Co.'s Table Cutlery,

W. Butcher's Files and Tools, Guns and Pistols,

Arms and Ammunition.

BRACKET WOODS.

WHITE HOLLY,

W. CARPENTER President.

ROSEWOOD,

BLACK WALNUT,

BIRDSEYE MAPLE,

MAHOGANY.

OAK, ASH, &c.

R. W COMSTOCK Secretary

Our Stock is now complete and ample. Price list sent on application.

WM. E. UPTEGROVE & BRO.,

Foot East 10th Street, NEW YORK.

SHEPARD HARDWARE COMPANY,

Forest Ave., Erie Canal, Black Rock Harbor, BUFFALO, N. Y.

SPECIALTIES.

Shepard's Patent "Noiseless" Blind Hinges.—Extra heavy. Weigh 10 to 20 pounds per Shepard's Patent "Noiseless" Blind Hinges.—Extra heavy. Weigh 10 to 20 pounds per case more than competing Hinges. The only Hinges that positively prevent rattling of Blinds. Shepard's Patent "Gravity" Blind Hinges, Nos. 1, 3 and 5.—New Pattern Acorn Tip. Shepard's Patent "Lull & Porter" Shutter Hinges.—New pattern, with patented device that prevents Blinds from being "lifted off" when opening or shutting, or by the wind. Shepard's "Reversible" Shutter Hinges (mortise).—New pattern. Same Hinge works equally well on right or left hand shutters.

Shepard's "Excelsior" L. & P. Shutter Hinges.
Shepard's Gate Hinges and Latches.—All the favorite patterns, Nos. 1, 2, 3, 10, 20.

Shepard's Cate Hinges and Lauches.—All the lavorite patterns, 10s. 1, 2, 3, 10, 2s. Also St. Louis Gate Hinges, &c.

Shepard's Patent Hand Fluters.—Nos. 85, 110, 98, 95, 100, 65, 70, &c. Best finished and largest sale of any Fluters of this class.

Shepard's Patent "Jolly Nigger" Toy Savings Bank.—Largest sale of any similar priced Mechanical Bank ever put upon the market.

Shepard's Detachable Handle for Pans, Basins, &c., just completed.

Buttles's Patent Cylinder Rings or Wall Safe Heads.—Best Ring, Smoothest Castings and Best Packages. Buttles' Patent Tinners' Stoves.—Each stove crated separately.
"Eclipse" Patent Stove Pipe Dampers.—Nickel Plated Spindle. Smoothest Castings

any Damper in the market.

Stove Lid Lifters.—Large assortment, including "Always Cool" and other favorite patterns. Copper Bronze, Maroon Finish, Japanned. In bulk or in pasteboard boxes.

Cast Bake Pans, Bread and Roll Pans, Boiler Handles, Garden Trowels, Coffee Pot and Sad Stands, &c. Toilet Ware Castings, Coal Vase Castings, School Furniture Castings, Table

Status, &c. Tollet ware Castings, Coal vase Castings, Second Furniture Castings, Table Castings, Ice Cream Freezer Castings, Stair Rail Brackets, Bedstead Fastenings, &c. Custom work, when in any considerable quantity, solicited. Quality of our castings excelled by none and equaled by few. Large capacity. Main factory building covers over 3½ acres. Good facilities for shipping to all parts of the country. Send for new catalogue.

SHEPARD HARDWARE CO., Buffalo, N. Y.

RHODE ISLAND HORSE SHOE CO.,

Horse, Mule & Snow Shoes of the Perkins Pattern. Works at Valley Falls, R. I. Office, 31 Exchange Place, Providence, R. I. C. H. PERKINS, Gen'l Manager.

-ALEXANDER BROS-PHILADELPHIA.

Elizabethport Steam Cordage Co., MANUFACTURERS OF MANILA, SISAL AND TARRED

CORDAGE OF ALL KINDS. BINDER TWINE A SPECIALTY.

46 South Street, New York.

ments of Calcutta, and its lack of hotel accommodation, I should say your countrymen have taken a course which is distinctly and

THE QUARTERLY MEETINGS

of ironmasters have taken place during the past week at Middlesboro', Wolverhampton and Birmingham. The first-named gather-ing is invariably little more than an ordinary weekly 'change meeting, and the transactions are mostly in the pig iron of the dis-The attendance was about an average and the business done not more. Prices were rather uneven, but the bears may be said to have had the best of the situation, their quotations for No. 3 being 38/10½ @ as against the 39/3 @ 39/6 of the ters. G.M.B., f.o.b. at makers' wharves in the Tees, were :

£5. 10/ @ £5. 12/6 for bars and £5. 17/6 @ £6 for ship plates. At Wolverhampton there was a good attendance, but business was rather slow, especially as it was promptly known that there would be no change in the selling prices of the leading brands. Summarized, these were as under: Lilleshall (Shropshire) hot-blast pigs, 62/6 @ 65/, and cold-blast, 82/6 @ 85/; Staffordshire allcold-blast, 82/6 @ 85/; Staffordshire all-mine hot-blast, 60/; hematites, delivered in Staffordshire from the West Coast or South Wales, 58/6 @ 62/; Staffordshire hydrates, 60/; mine, 52/6; common cinder, 40 @ 42/6; Lincolnshire, 50/; common Lancashire, 50/ North Staffordshire all-mine, 50/; Derbyshire, 45/ @ 50/; Northamptonshire, 46/ @ 47/6, and "Thorncliffe," South Yorkshire, 57/6 @ 60/, all \$\partial \text{toy} to in the district. The amount of business done in crude irons was very moderate, buyers being unwilling to close except at lower rates, while the smelters declared they were well sold forward and would not ease their quotations. In finished iron the tone of the meeting was somewhat more satisfactory, although prices were not officially lowered. Marked bars remained t £7. 10/, with £8. 2/6 for Lord Dudley's Round Oak" iron. Common Welsh bars were a trifle firmer at £5. 6/3 @ £5. 7/6, and any quantity of respectable bars could have been obtained at £6. 5/ @ £7 \Re ton. Hoops for export were called £6. 10/, with better sorts at £6. 17/6 @ £7. Gas and nail strips were £6. 5/@ £6. 7/6, with a good call for the latter from Canada. Sheets call for the latter from Canada. Sheets were in improved request at £7. 15/and upward for singles, £8. 5/ @ £8. 10/ for doubles, and £9. 5/ @ £9. 10/ for trebles or "lattens." For "Severn" singles, £11; "Baldwin Wilden B," £12; B. B., £13; B. B. £14; Charcoal sheets, £16. 10/; best charcoal, £19. 10/, and E. best charcoal, £21. 10/ were quoted. The plate rollers were quiet at recent figures. The galvanizers all reported themselves busy. At Birizers all reported themselves busy. At Bir-mingham next day there was an enormous attendance, the Exchange being crowded to suffocation with "all sorts and conditions of men," many of them mere idlers, as the Exchange authorities somewhat foolishly allow entry to all comers on Quarter Day. There were numerous merchants and other buyers present, however, from London, Liverpool and other places. Prices were precisely as just mentioned, but the business done is understood to have been larger than at Wolverhampton. In pig iron several lots of 500 and 1000 tons "in a line" changed hands, and respectable orders were placed for sheets, tin plates, galvanized iron, &c. The galvanizers held their usual meeting and reported a considerable accession of orders recently. Owing to the firmness of spelter and sheet iron, the price of 24 and 22 common galvanized iron was fixed at £13. 10/\$\mathbb{E}\$ ton, f. o. b. London, with extras for other gauges peaking. for other gauges, packing, &c., as usual.

IN TIN PLATES

the week has been relatively free from feathe week has been relatively free from rea-tures of importance. The Tin Plate Manu-facturers' Association held its quarterly meeting at Birmingham on Wednesday, with Mr. Flower, of Heath, in the chair, but only 14 firms were represented and the business transacted was only of minor importance. The general position and prospects of the trade, as a whole, were deemed satisfactory, a marked improvement being reported in the dem and from the United States and Germany. It was believed that since January 1 stocks at the ports had decreased by 250,000 boxes, and it was stated that the number of mills in South Wales not at work is 81, so that the present output appears to be slightly within the demand. The question of the production was very fully discussed, and it was resolved to make strenuous efforts to induce manufacturers to furnish more accurate returns of their several makes, so as to enable the production to be regulated to grea er advantage. It will be remembered that this has been tried on several former occasions with but an extremely modified success, and there is no good reason for sup-posing that the present effort will have better results. The London market for tin plates has been a trifle firmer. Wasters continue scarce, under a heavy American demand, scarce, under a heavy American demand, with I. C. coke primes at 16/3 @ 16/6; coke wasters, 15 6; charcoal ternes C., 28 x 20, 33 @ 35/, and charcoal ternes, 18/@ 20/2 box. At Liverpool a decided improveent is reported in the demand for charcoal the season call for ternes having now pretty nearly died off. In best cokes, both steel and iron, a good business is noted, steel plates with coke finish being 18/, I. C., and iron 19/@ 19/6 for I. C., special sizes being in very good request. It is currently rumored that some very big lines are being held back for coke tins, which rumors render makers the more indisposed to close more forward sales at present rates. It would seem certain that most of the makers' order books are well filled for a month or two ahead, and any spurt in tin or from your side would be quite likely to send up prices by 6d. @ 1/ pl box in all the ordinary sorts.

SOME CURRENT PRICES

Copper sheets, 4 x 4, f.o.b. London 73 00 03 Copper sheathing, f.o.b. London or Liverpool, \$\psi\$ ton \(\text{to} \) ton \(\text{London} \) 75 00 03 Yellow metal sheets, 4 x 4, f.o.b. London or Liverpool, \$\psi\$ b. \(\text{London} \) 00 00 6 Yellow sheathing, f.o.b. London or Liverpool, \$\psi\$ b. \(\text{London} \) 00 00 6 Liverpool, \$\psi\$ b. \(\text{London} \) 00 00 6

Wallaroo copper, in warehouse, London, \$\text{\text{\$\exititt{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\texitt{\$\text{\$\text{\$\text{\$\exititt{\$\text{\$\exititt{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\ roo copper, in warehouse, Livercopper, in warehouse, Liverl, 2 ton 62 5
selected ingot, f.o.b. London or
69 00 Best selected ingot, f.o.b. London or
Liverpool, ₱ ton. 69 00
Brass wire, f.o.b. London or Liverpool, ₱ b. 00 00
Copper wire, f.o.b. London or Liverpool, ₱ b. 00 00
Composition nails, f.o.b. London or
Liverpool, ₱ b. 00 00
Copper tubes, f.o.b. London or Liverpool, ₱ b. 00 00
Brass tubes, f.o.b. London or Liverpool, ₱ b. 00 00
Copper tubes, f.o.b. London or Liverpool, ₱ b. 00 00
Copper tubes, f.o.b. London or Liverpool, ₱ b. 00 00
Copper tubes, f.o.b. London or Liverpool, ₱ b. 00 00 best brands, f.o.b. London, ₹ ton. Iard spelter, f.o.b. London, ₹ ton... Iard spelter, special brands, f.o.b. London, ₹ ton... Irgin spelter, c.i.f. London or Hull, 11 00 15 10 00
 ♥ ton.
 15
 10

 Virgin spelter, special brands, c.i.f.
 15
 15

 London or Hull, ♥ ton.
 15
 15

 Remelted spelter, f.o.b. London, ♥
 13
 15
 13 15 00 ton.... Straits tin, in warehouse, London, ₩ 94 00 00 ton. English tin, in ingots, f.o.b. London, № ton. Jalvanized sheet iron, 18 & 20 G, f.ob. ₩ bottle..... Tin plates, I C coke, f.o.b. Liverpool, Tin plates, I C core, 1.0.5. London, 00 16
Tin plates, coke tin lined, f.o.b. Liverpool, ½ box. 00 17
Tin plates, I C charcoal, f.o.b. Liverpool, ½ box. 00 19
Cube nickel, f.o.b. London, ½ bo. 00 3
German silver sheets, f.o.b. London, 00 1 Pright iron wire, No. 0 to 7, f.o.b. London, & ton. Fencing wire, 0 to 6, f.o.b. London,
 ₩ ton.
 8
 15

 We mails, 0 to 7, f.o.b. London,
 00
 8

 Bamboo steel, % up, f.o.b. London,
 9
 7
 Regulus of antimody, by ton.
Crude antimony, in warehouse, Lonuruce antimony, in warehouse, London, \$\ext{y}\$ ton. 20 00 Lead, L. B. pigs, f.o.b. London, \$\ext{y}\$ ton 12 15 Lead, sheets, f.o.b. London, \$\ext{y}\$ ton. 13 2 Lead pipe, f.o.b. London, \$\ext{y}\$ ton. 13 12 Lead shot, f.o.b. London, \$\ext{y}\$ ton. 15 5 White lead (genuine dry), f. o. b. London, \$\ext{y}\$ ton. White lead (genuine dry), f. o. b. London, \$\mathbb{y}\$ ton. 18
Red lead (dry), f. o.b. London, \$\mathbb{y}\$ ton. 15
Tea lead, f. o.b. London, \$\mathbb{y}\$ ton. 17
Steel hoops, f. o.b. London, \$\mathbb{y}\$ ton. 9
Swedish hammered bars, c.l.f. London, \$\mathbb{y}\$ ton. 01
don \$\mathbb{y}\$ ton. 19
Old boiler plates, f. o.b. London, \$\mathbb{y}\$ ton. 4
Old horse shoes (packed), f. o.b. London, \$\mathbb{y}\$ ton. 5
Belgian bars, No. 1, f. o.b. Antwerp, \$\mathbb{y}\$ ton. 5 ₩ ton... Belgian nail rods, No. 1, f.o.b Antwerp

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

(Moniteur des Interets Materiels.)

Paus, October 14, 1883.—Metals.—Business begins to revive, and as there is nothing left to disquiet us, prospects continue to brighten. Metals have, however, been neglected, and are all lower with the sole exception of Spelter, which is well sustained. We quote to-day at the close: Copper—Chili Bars, 160 @ 162.50; Ingots and Slabs, 167.50; Best Selected, 171.50, and Pure Corocoro Ore, 167.50.

Tin—Banca, 224; Billiton and English, 230, and Straits and Australian, 252; Lead, 39.50 @ 31.50, and Straits and Australian, 252; Lead, 39.50 @ 31.50, and spelter, 40 @ 40.50. Iron.—The market in this city has again been less buoyant. Iron dealers sell at present their Flooring Iron at 19.50 francs \$\preceq\$ 100 kg., and their Merchant ditto at 17 francs, which is about the price it costs to lay the Iron down in depot at La Chapelle. They have made some favorable contracts in Old Ralls, deliverable in this city at 9 francs \$\preceq\$ 100 kg., delivered at the works, enabling the latter to compete with the outside world. In the department of the North the improved state of affairs is kept up. They have fixed the price at 16.50 for Merchant Iron as a basis, and quote Flooring, 17; Corners, 17.50; Sheets, No. 2, 20.50, and No. 3, 25. All rolling mills, with one exception, are busy in turning out Sheet Iron. In the Valenciennes basin a new Horse-Shoe factory on a large scale is to be founded. The month of October promises as large a trade in the Haute-Marne as September has been. They quote Charcoal Iron, 22 @ 22.50; Mixed, 19.50 @ 20; Coke, 18.50; Machine Mixed, 29 for No. 20. In the center, at 8t. Etienne, the precarious condition of a lack of orders continues to puzzle makers. A good many railroad material adjudications have come off during the week in the department of the Gironde, Var and Ariege. Coal.—The weather has been so damp and cold during the week that the Coal demand for household use is now properly started at 49 francs \$\partial to 1.00 the come of the content of the content

BELGIUM.

(Moniteur Industriel.)

Brussels, October 14, 1883.—Iron.—The week under review has been anything but a satisfactory one in point of activity, the difficulty being that raw material is held too high, and that the Finished Iron demand is not brisk enough to justify makers thereof in asking more money. English Fig sold at 5.63, Charleroi at 7, and Athus a little below English; Charleroi Puddling is firm at 5.90. The Grand Duchy of Luxembourg sold out the Germans at 4.50 up to March, 1884, which is equal to 5.70 in this country; hence Common Belgian is now held at 4.90 & 5; No. 1 Merchant Iron is worth, as heretofore, 12.50; No. 2, 13.50; No. 3 at 14.50; Beams, 13 & 13.50; Sheets, No. 2, 17; No. 3, 19; Commercial, 23; Thin, 25, and No. 4, 27. The Oporto (Portugal) Water Works Company have ordered their complete outfit from the Meuse Structural Company; this is quite an important order. Coal continues to tend upward in this city.

(Precurseur.)

(Precurseur.)

Charlerol, Oct. 13, 1883.—Iroa.—The market recovers slower than had been hoped in view of the decision of French makers, but it now appears that there is a wide difference between their resolutions and the carrying out of the latter; hence the rise in prices is far from becoming an established fact. Orders have been waited for in vain so long now at Charleroi that the atmost quiet and monotony reign supreme. At Liège, on the contrary, there is no lack of work, but at very low prices. Coal.—The general aspect here is rather encouraging, especially now that the demand for domestic use also manifests itself, and there is great firmness. At Liège this kind of Coal sells at 14 france 30 ton, and higher prices all round seem imminent.

GERMANT.

(Cologne Gazette.)

became out of the question. Now, it so chances that one of the leading firms at Hamm, the "West phalian Wire Manufacturing Union," had started a rolling mill at Riga several years ago. The Rolled Wire, for the drawing of Wire and the manufacture of Wire Nalls, was shipped regularly from Hamm to Riga, but now the high Russian duty excludes the so-called half-manufacture—i. e., the Rolled Wire—and the latter has now to be made by the same concern in Russia. But for this change in the Russian tariff the firm had prepared in due time, and as early as last year it had purchased a Steel works in Finland, now enlarged by adding to it puddling furnaces and a Wire-drawing train. Operatives are now proceeding from Hamm to Finland, enabling the 200 of them lately discharged to re-engage for Russia. The Hamm-Finland firm will do a much better trade and make more money in Russia than it ever did in West-Palla.

HOLLAND.

(Koch & Vlierboom.

ROTTERDAM, Oct. 6, 1883.—Tin has been quiet, with a light demand at the reduced figures. We quote: Banca. spot, 57; next sale, 57.25. Billiton, spot, 55.75, and distant afloats, 56.25.

AUSTRIA.

(Austrian Trade Journal.)

(Austrian Trade Journal.)
VIENNA, Oct. 14, 1883.—Iron.—Since our report of a week ago, the situation has remained pretty much the same—that is to say, about as favorable as can be, all works being busy to their full capacity, the blast furnaces, rolling mills and steel works all alike. The demand for Soft Steel Sheets is becoming so active in Austria that special works to roll the same are being erected; an equally lively demand exists for Sheet Iron of all classes and thicknesses.

EAST INDIES.

EAST INDIES.

(Gilfillan, Wood & Co.)

Singapore, Sept. 13, 1883.—Tin.—Upward of 270 tons have changed hands during the fortnight, the bulk being taken, apparently, for American account; we hear of very little for India and China. The price has fluctuated between \$29.80 and \$29.55, the latter being the value as we write, but supplies are coming freely to hand and a decline is looked for. Shipments promise to be large. Shipments from the Straits Settlements to the United States during the first eight months, 4709 tons, against last year 4642; 3213 in 1881; 5964 in 1890; 3818 in 1879, and 2481 in 1878. Freights.—Sailing tonnage is in increased supply; room in steamers is also pretty easily got for New York; the Elmiranda still requires some light freight to fill up, the V della Gnardia, now in Penang, will fill up here. For Boston the Sokoto has cleared with 2102 piculs Tin. Echange closes firm at 3/945.

(Hessenauer & Co.)

(Hessenauer & Co.)

(Hessenauer & Co.)

Colombo, Sept. 15, 1883.—Plumbago.—A moderate business has been transacted at ensuing rates, in rupees, & ton: Fine Lump, 140 @ 150; Ordinary, 125 @ 130; Chips. 60 @ 70, and Dust. 40 @ 50. Shipments since October, to England, 108,906 cvts.; to Trieste, 205; to Havre, 755; to India, 3066, and to the United States, 52,347; together, 295,281, against last year, 224,200; in 1881, 186,107, and in 1880, 294,009. Exchange, 6 months' sight documents, 1/8 5-32.

(Dummler & Co.)

(Dummler & Co.)

BATAYIA, Sept. 1, 1883.—Tin.—The auction held on the 29th uit. by the Billiton Company of 10,011 piculs averaged 63.79 guilders & picul. Swedish Iron.—Holders are unwilling to self. At 9 guilders some sales might be effected. No sales of English Bars. Sheets have been taken at 8.50, Steel at 8.50. Sales of English Copper Sheathing at 65 @ 67, and Yellow Medal at 55. Coal, dull and nominal, and so is Petroleum.

Kalamein.

As has already been announced in our columns, a company has been formed in Pitts burgh, known as the Kalamein Alloy Company, Limited, for the purpose of introducing into this country the use of the kalamein process as a substitute for galvanizing in the coating of iron and steel. Kalamein is a newly-discovered compound or alloy, which gives to iron or steel to which it has been applied an appearance very similar to roduced by the galvanizing process, and for the same purpose, viz., to protect the surface from the action of moisture, the atmos-It is also claimed that in phere or acids. using kalamein the surface is not simply coated with the alloy, but that it enters into combination with the iron or steel, not only protecting it from the action of corrosive in but improving the quality ron or steel, making it softer and more

In the use of kalamein there seems to be no danger of burning the iron or steel, as there was in the old galvanizing process. Metals coated with it also seem to resist the action of fire more completely than when coated with zinc, and iron coated with it can be heated red-hot without injury to the coating. Telegraph wire coated with it can be spliced without danger of cracking or breaking the cooling metal, and it is also believed that its softening influence will lessen the electrical resistance of steel wire and enable this wire to be used for telegraphic purposes instead of the expensive iron wire that is now used. From the fire-resisting properties already spoken of, it is also evident that iron and steel coated with this substance can be es where it is no manufactory, and which is frequently impossible or very inconvenient to do with gal-

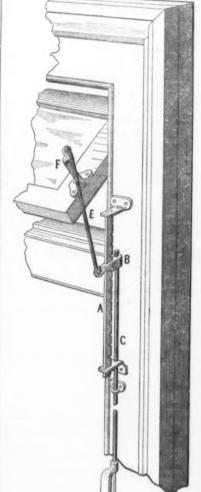
oating.
This process has been used for some time by Messrs Everson, Macrum & Co., of Pittsburgh, in the treatment of sheet iron. Pittsburgh, in the treatment of sheet iron. The National Tube Works Company, of McKeesport, have recently purchased the right for pipes and tubes, and are operating it at their works with great success. The Oliver & Roberts Wire Co., of Pittsburgh, are using it on their wire, and expect to substitute it entirely for galvanizing, while the firm of H B Soutt & Co. Limited while the firm of H. B. Scutt & Co., Limited, propose to use the process in the treatment of their barb wire and ribbon fencing.

A Firebrick Factory.—Messrs. Borgner & O'Brien, Philadelphia, have an extensive establishment for the manufacture of firebrick, situated on Twenty-third street, above Race street. It has a frontage of 80 feet on Twenty-third street and 215 on Davis street, and extends back to the Schuylkill, a distance of 600 feet. A great variety of articles are manufactured at these works—firebrick, edge-pressed furnace blocks, clay retorts, tiles, &c. All the regular-shaped bricks are pressed, and are of standard size, viz., 9 inches Cologne, Oct. 15, 1882.—Iron.—Rolled Wire industry in Westphalia is still prostrate. One of the smaller rolling mills near Witten has ceased operations for some time past, while the larger ones have been compelled either to discharge operatives or lower wages. Nor is there a prospect that this precarious state of affairs will undergo a favorable change for some time to come, for the domestic use of Rolled Wire only absorbs a portion of the productive capacity of the works. German Rolled Wireing uses the same manner as a baker his dough. Some manner as a baker his dough. Some manner as a ton. In the retort department we notice several improvements in machinery thereon, both the American and Russian markets. in length. Besides those of uniform size, there are made arch bricks, bull heads, by hand, and call for great care and skill in whithersoever they are turned, and without their production. In making these shapes any weight, both show and strike the hours,

form class of work. The stock on hand is Macbeth-or even an Italian watch of the well assorted, in order that customers may be supplied with the least possible delay. The shipping facilities are excellent, there being a wharf 300 back of the factory. wharf 300 feet in length at the

A New Transom Lifter.

The accompanying illustration represents an improved transom lifter, made by F. A. Reimer & Co., 11 and 13 South Canal street, Chicago, Ill., which is designed to obviate the difficulties met with in the ordinary article, and at the same time enable dealers to keep in stock an assortment of fewer sizes, which can be adjusted to suit the requirements of their customers. With the aid of the illustration, our readers will readily perceive the operation of this device. A represents the stationary locking bar, which is fastened by two brackets to the door frame, and which receives the spur of the locking bar B, thus holding the transom in any desired position. In opening and closing the transom the block B is moved up and



down by the operating rod C, near the end of which is a spur, which fits into the notches of the locking bar, where it is held by a spiral spring connecting the block B and the operating rod C, until by turning C the spur is freed from its hold and the block permitted to run up and down the bar. In brief, by turning the operating rod the spur is disengaged from the locking bar, and then by moving it up or down the position of the transom may be changed, and when the desired position is reached the spring carries the spur back and holds it in its place. It will be readily observed that, by changing the position of the locking bar and modifying the length of the arm E, this lifter can be adapted to transoms hinged at the bottom, top or on pivots.

Aggient and Modern Time-Keepers

Indifferent time-keepers as were the "pocket clocks" of the Middle Ages, no one individual appears to have been responsible for the machine as a whole. Was it from an Italian or a German brain that the equivapplied in many cases where it have sally to heat or bend the iron after it leaves the manufactory, and which is frequently impossible or very inconvenient to do with galvanized iron, owing to the cracking of the fifteenth century, sings of "certain small and portable clocks made with a little interest of the invention belongs to one of the theorem. The credit of the invention belongs to one of the writing during the final decade of the fifteenth century, sings of "certain small and portable clocks made with a little interest." The credit of the invention belongs to one or genuity, which are constantly going, showing the hours, many courses of the planets, the festivals, and striking when the time requires it." That was nearly a hundred years before the melancholy Jacques, in Shakspeare's "As You Like It," "met a fool i' the forest," the same fool that "drew a dial from his poke, and, looking on it with lackluster eyes, says very wisely, 'It is ten o'clock.'" The Shakspearean commentators have even now not decided what kind of dial it was that the fool first and Jacques afterward moralized on. Mr. Halliwell conjectures that it may have been the "com-mon ring dial" of the period. Another learned author surmises that the fool's time-keeper was probably similar to the elaborate octagonal silver pocket dial preserved in the collection of the Honorable Company of Clockmakers. It may, however, just as likely have been one of the Italian "small and portable clocks" mentioned by Visconti, or even one of the earlier regular watches of

German manufacture. Peter Hele, of Nuremburg, made a pocket clock within five years of the composition of Gaspar Visconti's sounet. Hele, at that time a young man, is described by a contem-porary writer as the maker of works "which even the most learned mathematicians admire. for he fabricates small horologies of iron fitted with many wheels, which, the workman manipulates the clay much in the same manner as a baker his dough. Some pieces made in this way weigh as much or even seen, one of the "Nuremberg living" Some pieces made in this way weigh as much or even seen, one of the state as a ton. In the retort department we eggs," as they were called, or a French notice several improvements in machinery table-watch, with a bell on top for striking possibly the "strike upon the bell" of

earliest manufacture. Considering to what extent the poet was indebted to the Italian novelists, Bandello and Luigi da Porta, Vis. conti's sonnet may not have escaped him. Watches, both oval and round, the latter not at all unlike, in outward appearance, to the modern lever, were made in England when the author of "As You Like It" was at the hight of his prosperity. Mary, Queen of Scots, gave a watch to her maid of honor, Mary Setoun, fashioned in the shape of a skull, suggestive of the relationship between time and death. Watch cases used to be made in the shapes of books and boxes, and they finally took the form which they still retain—minus a slight difference in the design of the bow—at least 250 years since. The watch belonged to John Milton while the author of "Paradise Lost" was yet known to his friends as the beautiful student of Christ's College, Cambridge, and was, in or Curisus Conege, Cambridge, and was, in the year 1874, bequeathed by Lady Fellows to the British Museum. Either Edward Barlow or Daniel Clarke invented the re-peater. Barlow claimed the merit of the invention, and tried to get a patent for it, but James II, at the instance of the Clock-makers' Company, decided in favor of Chara but James II, at the instance of the Clock-makers' Company, decided in favor of Quare. Thompson thought out the cylinder escape-ment, with horizontal wheel, during the reign of Dutch William, about which time Nicholas Faero, in connection with the De-baufrees, Peter and Jacob, took out an English patent, but the Clockmakers' Company, jealous of foreign rivalry, prevented them from getting an extension of the privilege by pretending that one of their fellowship, Ignatius Huggeford, anticipated Faero, and so the House of Commons decided against him. Huggeford was an impostor. He had, it appears, applied jewels to watches, but only as a sham, intended to deceive. Volumes might be written on the history of escapements and balances. Yet none of the long series of the ingenious inventions which make up even a low-priced modern watch excites our wonder so much as the marvelously exact mechanical appliances which the manufacture has called into being.

BOOKS ON IRON AND STEEL.

Clark.— Building Superintendence. By T. M. Clark; 194 diagrams, 336 pages, 8vo, cloth, 1883. . \$3

Excels

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This work is intended to supply a want experienced especially by young architects and those intending to build and supervise for themselves. The author selects three typical classes of buildings, namely, stone, wooden and brick, and shows the different stages of construction in each, from the breaking of the ground to the completion of the structure in every detail. The book is not designed as a manual of architecture and construction, but considers exclusively and minutely the best methods for selecting proper materials and using those materials economically and to the greatest advantage. At every step attention is called to the numer-ous mistakes that the amateur builder is lia-ble to make, from oversight, lack of system, or from the careless work of the contractor. The successive steps of the mason, carpenter and joiner, plasterer and plumber, are ex-plained and illustrated. Much attention has been given to the subjects of foundations, drainage, ventilation and heating, and while, perhaps, there is not much that is new while, perhaps, there is not much that is new stated on these subjects, yet we believe there has been no book published in this country in which so much practical information and advice has been collected in one volume. The book includes forms of specifications and contracts, and brief remarks on stairbuilding.

Du Moncel.-Electricity as a Motive Power. By Count Th. Du Moncel and Frank Geraldy. Translated from the French and edited, with additions, by C. J. Wharton; 113 illustrations, 316 pages, 12mo. cloth, 1883. \$3

An introductory chapter to this volume explains the principles on which the construc-tion of electric-motors is founded, the construction and laws of electro magnets, and the means employed to diminish the detrimental effects produced in electro-motors Following this are several chapters devoted to a historical summary of the early attempts to obtain motive power by electricity, with descriptions and illustrations of the different early electro-motors and their special appli-cations. The remainder of the book contains general remarks on modern motors and discusses at length recent applications and ex-periments, including applications of this force to railways, boats, cranes for hoisting purposes, elevators and other inventions. The different systems presented at the Paris Electrical Exhibition in 1881, and those shown at the recent exhibition at Munich, are discussed.

Practical Electric Lighting. A. B. Holmes, 8vo. Water Supply. W. R. Nichols. 4to, cloth, \$2.50. Society of Engineers, Transactions for 1882. 8vo.

Society of Engineers, Transactions for 1882. 8vo. cloth. \$0.

Mascart, E. and Joubert, J.—Treatise on Electricity and Magnetism. Translated by E. Atkin son. Vol. I; \$8.40.

Moore, R.—Universal Assistant and Complete Mechanic. New Edition. \$2.50.

McMaster, J. B.—History of the People of the United States. Vol. I; \$2.50. Pitman and Howard.—The Phonographic Dic-onary, \$2.50.

tionary, \$2.50.
Smalley, Eugene V.—History of the Northern
Pacific Railroad. \$2.50.
Spang H. W.—Practical Treatise on Lightning
Protection. New Edition \$1.50.
Thompson, S. P.—Dynamo-Elec ric Machinery.

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DAVID WILLIAMS. 83 Reade St., New York.

Wholesale Hardware Prices, October 31, 1883.

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A nviis	
Wright's	8 toe-dis 20 %
Armitage's house Hole (extra quality) Trenton	10/4c
A nviis. A Fazie Anviis American. Wright's. Armitage's Mouse Hole. Armitage's Mouse Hole (extra quality) Trenton Wikinson's. J & Riley Carr. Patent Solid. Anvii Vise and Drill. Millers Fails Co. \$18.00. hency Anvii and Vise. Anvers and Hits.	dis 20 €
Anvil Vise and Drill. Millers Fails Co. 818.00 Theney Anvil and Vise. Augers and Blits. On. Valley Mrg. Co. E. Jennings & Co. Humbhreysville Mrg. Co. E. Jennings & Co. Humbhreysville Mrg. Co. Free. Free	:
Humphreysville Mfg. Co.)	from list of
Solves Mfg. Co. Shell Mfg. Co. Extra	dia ss #
Cook's Douglass Mfg. Co. Satent Solid Head. Lewis' Patent Single Twist.	dis 40&10 % dis 30 % dis 45 %
Russell Jennings' Auger, Dowel, Machin Hand Rail bits	.dis ickickic % 6%&ickickic % 8. Boring-Ma-
chine and Miliwrights' Augersdi fnitation Jennings' Bits	8 25&10&10&10 % dis 50 % dis 40&10 %
Expansive Bits, Clark's, small, \$18; lary Expansive Bits, Ives'	ge, \$26 dis 25 % o—dis 333 % to %
Hollow Augers, Ives	dis 40&10 %
Hollow Augers, Bonney's Adjust. # dz. Hollow Augers, Stearns' Adjust. # dz. Hollow Augers, Ives' Expansive, each \$.	\$48—dis 25&10 % \$48—dis 20&10 % 1.50—dis 30&10 %
Wood's	gross, dis 50 % 1.10, dis 25&10 %
Gimlet Bits "Bee" Double Cut Gimlet Bits, Shepardson's Double Cut Gimlet Bits, Ct. Valley Mfg. Double Cut Gimlet Bits, Hartwell's.	Co. dis 30&10 %
Double Cut Gimlet Bits, Douglass' Double Cut Gimlet Bits, Ives' Morse's Bit Stock Drill	dis 40 % dis 50 % dis 25&10 %
L'Hommedieu's Ship Augers	dis 15 %
Patent Sewing, Short\$1 00 \(\psi \) d Patent Sewing, Long\(\psi \) Patent Peg, Plain Top\(\psi \) Patent Peg, Plain Top\(\psi \)	os.—dis 40&10 % 1.20 % dos.—net bes—dis 40&10 %
Awis, Strad Sets, &c. Awis, Sewing, Common \$\pi\$ gross \$\pi\$. Awis, Shouldered Peg \$\pi\$ gross \$\pi\$.	1.70—dis 25&10 %
Awis, Patent Peg # gross Awis, Shouldered Brad # gross 8 Awis, Handled Brad # gross Awis, Handled Scratch # gross Awis, Handled Scratch #7,50 # gro	040—018 25&10 % : 70—018 25&10 % 088—018 25&10 % 088—018 25&10 %
Awis, Socket Scratch	oss—dis 10&10 %
House at some states of the control	80dis 30&10 % 80dis 30&10 %
single Bit. 4% to 5% and under Single Bit, 4% to 6 and over	. P dos 8.00 net P dos 88.50 net P dos advance
A x cs. Single Bit. 4% to 5% and under. Single Bit. 4% to 6 and over. Single Bit. 4% to 6 and over. Double Bit. 4% to 5% and under. Pouble Bit. 4% to 6 and over. Uouble Bit. 4% to 6 and over.	dos \$15.00 net dos \$16.00 net dos advance
Frazer's	P 15 60
Balances. Spring Balances. Beiss. Head. Light Brass.	dis 33% %
Hand, Extra Heavy Hand, White Metal Hand, Silver Chime	dis 45 9
Hand, Globe (Cone's Patent)	dis 20&10 %
Crank, Taylor's	dis 25&10 %
Lever Sargent's Lever, Taylor's Bronxed or Plated Lever, Taylor's Japanned	dis 55&10 %
Lever, R. & E. M. Co.'s	dis 508:108:2 8 dis 258:108:10 8 dis 508:108:2 8 dis 258:10 9
Cow, Common Wrought Cow, Western,	dis 25 %
Cow. Kentucky "Star"	die for toking
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		Wholesale Metal Prices See Page 3	77.)
	Hutta, Wrought Brass. dis 70@75 5 Cast Brass The bout's dis 334, 5 Cast Brass, Corbin's Fast Joint dis 262.5 Cast Brass, Corbin's Fast Joint dis 262.5 Cast Brass Loose Joint dis 267.5	Dividers	Patent Auger, Douglass
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2004	Fast Joint. Lroad	Door Springs Orey's Rod, regular size, P dox., \$1	Challenge. dis so \$\frac{1}{2}\$ "Champion" Medina Mfg. Co
eee		Gem (Coil): No. 1, Large Japanned # doz \$1.00 No 2, Medium, Japanned # doz 2.75 No 2, Medium, Japanned # doz 2.75 No 2, Medium, Japanned # doz 2.75	Cronk No. 4, \$12; No. 5, \$14 40; No. 6, \$21; dis 50 Cheritree
20	Loose Pin, Acorns	9-em (Coll): No. 1, Large Japanned # doz \$4,00 No. 2, Medium, Japanned # doz \$2.00 No. 2, Small, Japanned # doz \$2.00 Star (Coll) - For Cop'd, Nickel-Plated &c., sec list. No. 4, ("Shoo Fly") Serven door size, # doz \$2.00 No. 5, Nereen Door size # doz \$2.00 No. 6, Nereen Door size # doz \$2.00 No. 6, Hedium # doz \$2.00 dis 60 \$2.00	Terry's Patent in \$12; 3½ in \$10; dis 40 % Cronk No. 4, \$12; No. 5, \$14.40; No. 6, \$21; dis 50
	Fast Joint, Narrow	No. 6, Medium	Harness Shaps. Auchor (T. & S. Mfg. Co.)
10	Loose Joint, Broad	No. 7, Large No. 1, \$1:2, \$1:0; \$4 do \$2.75 No. 7, Large No. 1, \$1:2, \$1:0; \$3:5; \$4.82.5; dls 35:5 Sabin's Boss No. 1, \$4 doz. \$4.00; \$2.75; \$2.0dis 35:5 Philadelphia 9, \$1.8, \$5.00; \$1.8, \$7.77, \$4 dis 35. Cowell's No. 1, \$4 doz. \$1.00; No. 2, \$5.00; dis 05. Rubber, complete \$4.00; \$1.00; \$0.2, \$1.00;	Fitch's (Bristol), list of 134 change to \$14.00 dis 50 @ 55 % Hotchkiss dis 10 % Andrews' dis 50 %
	Loose Pin, Mrt	Rubber, complete. \$\pi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Andrews' dis 50 \$ Sargent's dis 70%10 \$ German, low list, Sep. 1882. dis 70%10 \$ German, Sargent's new list. dis 60%10 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
4343436	Spring Hinges: Geer's Spring and Blank Butts Geer's Spring and Blank Butts Geer's Spring and Geer's Subin Mfg. Co. a Double Acting. Glas 25 Union Spring Hinge Go. a Glas 25 Gen Go. a Glas 25	Hercules	Covert. dis 50 % Covered Spring, new list, Oct., 1882 dis 60&10 % Union dis 50&10 % Union dis 50&10 % Union dis 60&10 % Union
W.14	Union Spring Hinge Co.'s	Morrill	Saink Blood
W. W.	Barker # Double Acting		Claw, Nos. 12 3. 94 dos 7.75 8.40 0.25 Lathing, Nos. 12 3. 94 dos 7.50 8.00 8.50 Hunt's. dls 25 8
ANDRA	Empire dis 50&10 % Acme dis 55&10 % Climax dis 55&10 % Climax dis 50&10 %	## Drill Stocks Blacksmiths'	Hunt's. dis 25 % Shingling Nos. 12 3.
A MIN	Blind Butts, Palmer dis 50&10 Blind Butts, Palmer dis 50&10 Blind Butts, Seymour dis 70&2 Blind Butts Lull & Porter dis 76&70	Breast, Millers Falls each, \$3 00, dis 25 % Breast Bartholomew's each, \$2,50, dis 2-25 % Bratchet Merrille	Hurd's. dis 30 @ 35 % Shingling Nos. 12 3. # dos 88.co 88.50 89.00 Claw Nos. 12 3. # dos 80.00 9.50 10.00 Lathing Nos. 12 3. # dos 8.co 8.50 9.co Co 9.00 10.00 Co 9.00 Co 9.00 Co 9.00 Co 9.00 Co 9.00 Co 9
NAMA >	Silind Butts, Pairer	Ratchet, Ingersoll's	Yerkes & Plumb
O MAN	Blind Butts, ManDattan Hardware Co	Raticlet, Whitney's dis 20% 10	Simmons
MANA	Blind Butts, Shepard's "Noiseless," Nos. 50, 60, 65, 45 and 54 Blind Butts, Shepard's "Gravity," Nos. 1, 3 and	Automatic Boring Toolseach, \$2.25, dis 20 5 Drill Chucks. Morse's Beach Patenteach \$8.00 dis 20 5	Lathing, Nos. o i 2 3., 4 dos 8.00 8.50 9.00 Broad, Nos. i 2 3., 4 dos 9.00 10.00 12.00 14.00 Broad, Nos. 56 7 8., 4 dos 10.00 18.00 20.00 22.00 Collins
AMMA	Shepard's Luil & Porter Shutter Hingesdis 70&10 % Shepard's Reversible Shutter Hingesdis 70&.0 %	Drill Chucks. Morse's Beach Patent. Morse's Adjustable. each \$8.00, dis 20 5 Morse's Adjustable. each, \$6.00, dis 20 5 Danbury. each, \$6.00, dis 25 Dover. ### dos. \$2.50, dis 25	Shingling, Nos. 123. \$\psi\$ dos \$\psi_{\sigma}\$ dos \$\psi_{\sigma}\$ & \$\ps_{\sigma}\$ & \$\psi_{\sigma}\$ & \$\psi_{\sigma}\$ & \$\psi_{\sigma}\$
F MM	Clark's Improved Stutter Hinge, Nos. c. 1, 199, 2, 296, 3	1 Dover # dos. #2.50, dis 2 % dismoves dis so \$ dis so \$ National # dos. #3.50, dis 335 % \$ Standard # gross #180 of the so \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
100	Bradley's dis 25 % Beatty's dis 33% % dis 33% %	1 Dover # dos. \$2.00, dis 2 % Monroe's. dis 0 % National # dos. \$4.00, dis 0 % National # dos. \$4.00, dis 0 % Standard # gross, \$15.00, dis 2 % Family (T. & S. Mfg. Co.) # gross, \$16.00, net Acme. # gross, \$12.00, dis 2 % Triumpn (T. & S. Mfg. Co.) # gross, \$12.00, dis 2 % Elevator Buckets	Claw, Nos. 12 3 P doz 0.00 6.50 10.00 Half, Nos. 12 3 P doz 10.00 11.00 12.00 Ax Pattern, Nos. 12 3 P doz 10.00 11.00 12.00 Hay Mnives.
et %	Bradley	Frumpa (1. & s. MIG. Co.). Fgross, \$11.00, net Elevator Buckets, since the Chuc's Improved). Fto. \$12.00 (8.10.00). dis to. \$10.00 (8.10.00). dis to	Hay Knives. "Lightning". "Lightning". "Add \$20,00 dis 10 % Wadsworth's. Hinges.
*	American	Mill E. Buckets, heavy, 5 to 10 in. (Duc's Improved), \$\partial \text{doz. \$\frac{1}{8}\tau_0 \text{ \$\frac{1}{8}\text{10.7}}\$. dis 10 \$\frac{1}{8}\text{storehouse (Duc's Patent), 12 to 17, \$12 @ \$20dis 10 \$\frac{1}{8}\text{Emery.}\$	Wadsworth's dis 335 %
**	No. 4, French	Emery. Regular numbers. Fin 8c Flour and F. F. For Emery Paper and Cloth see Sand Paper. Enameled and Tinned Ware.	Gate, N. Y. State. # doz \$1.5,5 dis 5,5 g Gate, Automatic. # doz \$12.50, dis 50 g Gate, Common Sense. # doz pair \$1.50, dis 50 g
AMMA	Sardine Scissors	Enameled and Tinned Ware. Kettles	Gate, Seymour's
MMM	"Worlds Best " # gross, No. 1. \$12.00; No. 2, \$24.00; No. 3, \$35.00	Ecttles	Rolled Plate dis 60&10 % Rolled Raised
et	Domestic. # doz \$2.50, dis 45 % Champion # doz \$2.00, dis 50 % doz \$2.00, dis 50 %	Door Lock	Rolled Plate
et et	Hicks & Goldmark's F. L. Waterproof, 1-10's	Voucets	Screw Hook and Eve. 34 in., 90 dis
be be	F. L. Waterproof, 1-10's	Frary's Patent Petroleum. dis 55&10 % West's Patent Key dis 20&10 %	(% in 13c) 30 %
×	G. D. & S. B	Matchille Form V. and A. S.	Wrought Strap and T dis co%10x2 % @ Hoese
14 10	U. M. C., Double W. Proof	Settainc Rey, Leatner Lined	Scott Patter
RHINN	E. B. 1-10, trimmed	Felloe Plates # doz. \$36.00, dis 26&to 5 Felloe Plates # 25,000, dis 26&to 5 Files. # 25,000, dis 30 5 Files. pew list April 28, dis 15	Hrd Cage, Sargent's list
N.W.W.	Cartridges.	J. & Riley Carr	Cotton Patented (N. Y. Mallet & Hand'e Wks), dis 30 \$ Cotton (Humason & Beckley Mfg. Co). dis 40 \$ Belt. dis 60&1c&10 \$
****	Cotton. new list Aug., '93, dis 10 % Wool. new list, Aug., '93, dis 10 % Larpet Miretchers.	A Riley Carr Horse Rasps Clis 10%	Bench—Hotchkiss \$4,00 ₹ dos dis 10 % Weston's No. 1, \$10,00; No. 2, \$9,00 ₹ dos. dis 24&10 % McGilt's, \$3,00 ₹ dos dis 10 \$
et	CartridgesRIM dis 6x& 5	Section Sect	Grub. Gr
**	Casters, -Bed Gls 50 7 Plate Cls 50 7 Shallow Socket Gls 50 2 Cls 50 2 C	Finting Wachines. Knox, 4% Inch Rolls. Sacceach dis 35 %	Harness, Reading list. dis 40&10&10 Coat and Hat, Sargent's list. dis 60&10&10 % Coat and Hat, Reading dis 40&10&10 %
***		Fagle 35 inch Roll	Wire Coat and Hat, Miles'
*	Marcin's rate (Finders)	American, s-in., \$1; 6-in., \$3,50 each, dis 35,50 Domestic Fluter. \$1,50 each, dis 35,50 Domestic Fluter. White Metal. \$2,50 each, net	Picture HOOKS, Brown's Fat. Solid Brass, \$4.00 bgross. dis 25 tassel and Picture (T. & S. Mfg. Co.) dis 05 tassel and Picture (T. & S. Mfg. Co.) dis 05 twrought Staples and Hooks & Staples. dis 262/5&10 twrought Staples. Stanley's list. dis 262/5&10 twrought Staples. Stanley's list. dis 262/5&10 twre Screw Hooks and Eyes. new Hist, dis 262/6&10 transa and Bush. dis 468/50 twrestere—Patent. dis 262/65 throws and Eyes—Maileable Iron. dis 262/65 throws and Eyes—Maileable Iron. dis 262/65 total 186/6/105
7	Trace, 04-10-2.	Crown Hand Fluter, Nos. 1, \$15; 2, \$12.50; 3, \$10.00 \$4 dos. 418 30 \$5 Shepa"d Hand Fluter, No. 85, per doz \$15, dia 40 \$	Grass and Bush. dis 45@50 \$ Whiffletree—Patent dis 46646 \$4 Hooks and Eyes—Malleable Iron dis 50&10 \$
7 % %	German Haiter Chain, inst of Dec. 31, 1681	Crown Hand Fluter, Nos. 1, \$15; 2, \$12.50; 3, \$10.00 \$\frac{1}{2}\$ dos \$0.50\$ Shepard Hand Fluter, No. 16. per dos \$15, dis \$0.5\$ Shepard Hand Fluter, No. 16. per dos \$5, 50, dis \$0.5\$ Shepard Hand Fluter, No. 9. per dos \$5, 50, dis 20.5\$ Clark's Hand Fluter. \$0.50\$ Clark's Hand Fluter and Sad Iron. \$\frac{1}{2}\$ dos \$15, 00, dis 20.5\$ Combined Fluter and Sad Iron. \$\frac{1}{2}\$ dos \$15, 00, dis 20.5\$ Suffalo. \$\frac{1}{2}\$ dos \$10, 00, dis 20.5\$ Huting Sclassors dis 45.5\$ Huting Sclassors dis 45.5\$	tiorse Natis.
2	Pecc. Stow & W. Co. Glis 33/52/10	Buffalo	Ausable, \$\psi\$ \$\tau\$ 31c 28c 2fc 24c 24c 24c, .dis 30&10 % Clinton, Plain. \$\psi\$ \$\tau\$ 25c 2fc 24c 24c 23c, .dis 30&10 % Clinton, Plain. \$\psi\$ \$\tau\$ 25c 25c 1c 20c 19c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 25c 24c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 28c 28c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 28c 28c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 28c 28c 28c 23c .dis 30&10 % Easex, \$\psi\$ \$\tau\$ 31c 28c 28c 28c 28c 28c 28c 28c 28c 28c 28
XXX	Chalk Lines.—See Lines.	Forks. Handre and Spading. dis 50 % Plated, A 1, Rogers & Bro. dis goardes, 50	Globe, "26c 23c 27c 20c 19c 18cdis 1236 %
N N	White Crayons	Fores. dis to \$\frac{1}{2}\$ Fores. dis 40\text{in \$6.50}\$ Flated, \$A_1\$, Rogers & Bro. dis 40\text{in \$6.50}\$ Flated, \$Reed & Barton. dis 40\text{in \$6.50}\$ Flated, \$Reed & Barton. dis 40\text{in \$6.50}\$ Enterprise Mig. Co. dis 20\text{in \$6.50}\$ dis 20\text{in \$6.50}\$	Forged310 380 200 240 240 230 018 30 %
2% 1% 0%	Chinels. Socket Framing, Arlington Edge Tool Co. Socket Framing, Merrill Socket Framing, Merrill Socket Framing, Merrill Socket Framing, Witherby Tool Co. Socket Framing, Witherby Tool Co. Socket Framers, Arlington Edge Tool Co. & 10 %	Fry Fans. Burnished list as follows	Saranac, 26c 23c 21c 20c 13c 18c dis 248 fiorse Shoes. Hurden. * keg \$4.37% R. I. Horse Shoe Co., Perkins Improve.
et	Socket Firmers, Merrill. Socket Firmers, Witherby Tool Co.	Acme	Light, medium and Heavy — Feeg 84, 37% Walker's Forged, Light, Med. or Heavy — Feeg 84, 37% Mule Shoes. Dunning's Steel. ** Keg 85, 37% Mile Shoes. ** Keg 86, 37% Mile Shoes. ** Keg
et	Socket Framing and Firmer Buck Bros dis 25 Socket Framing and Firmer, Douglass, dis 562 to 82 Tanged Firmers. dis45 S	Wire, Disaton's dis 20 % 10 % 10 % 10 % 10 % 10 % 10 % 10 %	Ce A wis, Chisels, dec. American Ice Chisel
MMM	Panged Firmers, Butcher's	Wire, Wheeler, Madden & Co dis 10 5	White's Silding Head Picks. # dox \$2.50 dis 20 \$ Duniup's Ring Picks. # dox \$2.50 dis 40 \$ Wood Head Picks, Sargent's. # dox \$1.50 dis 50 \$7
**	Fon, Frevindence 1001 Cd. 8 wr6. Iron	Double Cut, Hartwell's dis socio 5 Double Cut, Ives' dis socio 5 Double Cut, Ives' dis socio 5	Iron Head Ficks, Sargent's \(\psi \) doz \(\beta \). 25 dis soc 10 \(\beta \) lee Mallets, Pick in head \(\beta \) doz \(\beta \). 75 dis so 5 lee Mallets, Pick in Handle \(\beta \) doz \(\beta \). 25 doz \(\beta \). 25 lee Mallets, Pick in Handle \(\beta \) doz \(\beta \). 25 doz \(\beta \) so dis 14 \(\beta \).
MAN	Panged Firmers , Buck Bros (Shank) 5.5 to & Clamps on, Fro vidence Tool Co.'s Wrt. Iron dis 25 g Iron, Adjustable, Oray's dis 20 g Iron, Adjustable, Lambert's dis 20 g Iron, Adjustable, Lambert's dis 20 g Iron, Adjustable, Hammer's dis 15 g Iron, Adjustable, Hammer's dis 20 g Iron, Adjustable, Hammer's dis 20 g Iron, Adjustable, Steam's dis 20 g Iron, Adjustable, Steam's dis 20 g Iron, Erron, Epchard Mikers', Sargent's dis 60-&took to \$1 g Iron, Eberhard Mig. Co dis 3,14 \$ g Iron, Eberhard Mig. Co dis 3,14 \$ g Iron, Eberhard Mig. Co dis 2,14 \$ g Iron, Eberhard Mig. Co dis	"Bee" \$\psi \text{9 FO. \$\psi \text{21.00}\$, \dis \(2\) \\ \frac{1}{2} \text{4.00}\$ Pots. Tinned and Enameled \text{dis \(3\) \\ \frac{1}{2} \text{5 Family}\$, \text{Lowe's "Eureka"} \text{dis \(3\) \\ \frac{1}{2} \text{Family}\$, \text{L F. & C.'s "Handy"} \text{dis \(3\) \\ \frac{1}{2} \text{conjugates}\$ \(\frac{1}{2} \text{conjugates} \) \\ \frac{1}{2} \text{Lures.} \text{dis \(3\) \\ \frac{1}{2} \text{conjugates}\$ \\ \frac{1}{2} \text{Lures.} \end{tikes} \]	Amn Moh Co
N	Iron, Carriage Marces, Sargent 8. Uni osciocito s. Iron, Eberhard Mig. Co. dia. 335 % Saw Clamus. See Viaes 4 lines. Axte.	Family, L. F. & C. 's "Handy" dis 30% to % Grindstone Fixtures. Sargents Patent dis 70% to % Reading Hardware Co. dis 30% to %	Torrey's
8 8	Cilps, Axte. Norway or Best. dis cc25, 5 Superior. dis 70 % Cockeyes. dis (5 % Cockeyes. dis (5 %)	Reading Hardware Co	Champion # doz \$6.00 dis 25210 \$
N SH SH N	Cocks, Brass. Aacking	Gun Wade. 82.00 U. M. C. B. E., 17 Up. 82.00 U. M. C. B. E., 962 to. 2.30 U. M. C. B. E. 768 . 3.50 U. M. C. P. E., 92 to. 3.10 U. M. C. P. E., 98 to. 4.00 U. M. C. P. E., 268 . 4.90	Kettles. Prass, 7 to 13 inches inclusive. Prass larger than 13 inches.
* *	Racking	U. M. C. P. E., 7&8	Hass, 7 to 13 inches inclusive. Who see not increase increase increase with a see incr
***	Selsor's rat	Hatters. Covert's Pat. Rope	Hay and Straw, Wadsworth's dis 33½ Table and Pocket See Cutlery K nobs.
MMMM	Webb's Patent. dis 446840 \$ f ompasses. Dividers, &c. dis 60 \$ Compasses dis 60 \$ Catipers. dis 60 \$	Cheney's, new list, March, 1883	Carriage (Jap'd 80c ¥ gross)
et	allpers. dis 6 % plylders. dis 6 % plylders. dis 6 % ger is & ' all Co.'s Dividers. dis 6 & ; \$ 8 err is & ' all Co.'s Compasses and Califpers. dis 6 & ; \$ 9 era s & Cali Co. 's Wing & Inside or outside. dis 6 % \$ 9 era s & Cali Co. 's Wing & Inside or outside. dis 6 % \$ 9 era s & Cali Co.'s (Cali's Patent Inside). dis 6 % \$ 9 era s & Cali Co.'s (Cali's Patent Inside). dis 30 %	VERTOC dis 65	Door Mineral
et	Bernis & Call Co. 's Wing & Inside or outside. dis 50% 5 Bernis & Call Co. 's Double dis 50 % Bernis & Call Co. 's (Call's Patent Inside). dis 50 % Excelsion. dis 50 %	Magnetic Tack, Nos. 1, 2, 3, 81.26, 1.50 and 1.75, dis 242.10 S. Neison Tool Works. dis 242.10 S. Warner & Noble's dis 10 S. Yerkes & Plum. dis 10 S. Yerkes & Plum. dis 10 S. Wilkinson's smiths. High will be small flags and Leg irons. High but to 11 Jac 9 to net 15 and 5 Lafts and Leg irons. Providence Tool Co., Hand Cuffs, 815.00 V dox.dis 10 S. Providence Tool Co., Leg Irons, \$25.00 V dox.dis 10 S. Providence Tool Co., Leg Irons, \$25.00 V dox.dis 10 Jac 9 Cower's dox.dis 10 Jac 9 Cower 9 Jac 9 J	Door Por. Flated Door Por. Flated Door Por. Flatin Furniture Flain Furniture Wood Screws Flutiure, Wood Screws Fleture, Judd's Fleture, Judd's Fleture, Sargent's Glis Script Hemacite, Fleture Shutter, Forcelain Socio Script
M MI	Excelsion dia co 5 Cook's Extension dis 25 J. Stevens & Co a Calipers and Dividers dis 25 Leopers' Tools.	Providence Tool Co., Hand Cuffs, \$15.00 \(\) doz. dis 10 \(\) Providence Tool Co., Leg Irons, \$25.00 \(\) dos dis 10 \(\) Tower's	Hemacite, Picture. dis 3.5. Shutter, Porcelain. dis 60% 10.5. Ladles. dis 50% 10.5. Melting, Sargent's. dis 50% 10.5.
NNNN	Starton's	Perdon do so ton trib ton the state of	Melting, Sargent's
N. W. W.	Clough's Pat. dla 33/4 S Corn Kaives and Cutters.—Bradley's. dls 10 S Wadsworths. dls 25 S Craw Bars. Bradley's. dls 25 S	Roggin's Latches. # dos acc. 69 doc. net Bronze Iron Drop Latches. # dos acc. 69 doc. net Jap'd Store Door Handles—Nuts, \$1.62; Plate. \$1.1e; no Plate. \$0.88. net	Tubular
MMMM	Craw Bars. cast Steel	Wrought Chest	Nations No. 1 & dos sic No. 2 so, net Hurricane, No. 3 dos sic No. 2 so, net Hurricane, No. 3 dos sic No. 2 dos si
MM	Curing Tongs	Baw and Pinne. dis 602:6 8 Bownton's Loop Saw Bandles. dis 400:00 8 Bownton's Centennial Saw Handles. Soc. dis 60 8	Ætiadis 10&10 %
****	thry County. Strict Stric	Hornore and Hetchet	Police Small, \$6.50; Med., \$7.75; Large, \$10.00. di 175 Convex Reflector \$2.7 \$ doz. dis 16 \$ [
*	d'urtain Pins. silvered Glass	Jan'd Store Door Handles—Nuts, \$1.62; Plate, \$1.62; no Plate, \$6.88. He arn Door. W dos \$1.60, dis notice to the property of	1.emon Manerzera.
MAN	Cutlery. Meriden Cutlery Co. (Table)	File assorted # gross 2.75 25&10	Sammis', No. 1, &c. 2, &8.40; 12, &12 \ \ \phi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
76	Aaron Burkinshaw's Porketdie ac g	Auger, large, is gross	Jen'inga 'Star'' \$ 0.0 \$ 0.0 net The Boas' \$ 0.0 \$ 0.0 net Dean's Nos. 1. \$ 0.0 \$ 1.00 \$ 0.0 \$ 0

Wholesale Metal Prices See Page 3	U
	P
Dividers	Ba Ba Cl
Destrict	St
9-em (Coll): No. 1, Large Japanned \$\mathref{9}\$ dos \$\mathref{8}_4.00\$) No. 2, Medium, Japanned \$\mathref{9}\$ dos \$\mathref{2}_4.00\$) No. 3, Small, Japanned \$\mathref{9}\$ dos \$\mathref{2}_4.00\$) Star (Coll)—For Cop'd, Nickel-Plated &c., see list. No. 4, ("Shoo Fly") Sereen door size, \$\mathref{9}\$ dos \$\mathref{2}_4.00\$) No. 5, Medium	KUT
Star (Coil)—For Cop'd, Nickel-Plated &c., see list. No.4 ("Shoo Fly") Screen door size, \$\varphi\$ dox \$1.50 No. 5, Screen Door size \$\varphi\$ dox 2.00 No. 6, Medium	C
No. 7, Large	H
Sabin's 'rown	H A St
Rubber, complete. \$\Psi\$ dos. \$2.2c. dis 208 to \$\frac{1}{8} tercules. \$\frac{1}{8} tercule	99000
Crossman's No. 1. dls 65%5 % Morrill. dls 70 % Nobles Mfg. Co. dls 15 % Bradley's. dls 26 %	Tie Tie
Adjustable Handle. dis 20 % Witherby Tool Co. dis 70 % Douglass dis 70 %	
Orills and Drill Stocks Elackmiths each, \$2.50, dis so \$ Elackmiths each, \$7.50, dis so \$ Elackmiths each, \$7.50, dis so \$ Elackmiths each, \$7.50, dis so \$ Ereast, P. S. & W. dis so \$ Ereast, Whiten each, \$3.50, dis so \$ Ereast, Hotchkiss dis so \$ Ereast, Millers Falls each, \$3.50, dis so \$ Ereast Bartholome W s. each,	B
Breast, Hotchkiss². dis 20 % Breast, Wilson's. dis 25 % Breast, Millers Falls each, \$3 00, dis 25 %	H
Ratchet, Mitney's	Y
Ratchet, Weston's	s
### ### ##############################	
Morse's Beach Patent each \$8.00, dis 20 % Morse's Adjustable each, \$7.00, dis 20 % Danbury each, \$8.00, dis 30 %	C
Dover	F
Standard	A
Elevator Buckets. Elevator Buckets. # gross, \$11.40, net Elevator Buckets. # 100, \$14.00 @ \$4.00. # 100, \$14.00 @ \$4.00. dis to \$1.40.	V
Danbury	GGG
Emery. Regular numbers. # B 8c Flour and F. F. # B 6c For Emery Paper and Cloth see Sand Paper. Enameled and Tinned Ware. Extles	900
Enameled and Tinned Ware. Kettles	GGE
Brassdis 60 %	FEE
Door Lock	S
Wood	8
Star	F
Accept Color	TO MO
Metallic Key, Leather Lined dis 50 % Cork Lined is 70 % J. Sommer's Best Block Tin Key dis 70 % J. Sommer's Cork Lined, 1st quality. dis 50 % Self-Measuving, Enterprise. # doz. \$30.00, dis 20% 10 % Self-Measuving, Lene s. # doz. \$30.00, dis 20% 10 % Felice Plates. # doz. \$30.00, dis 20% 10 % Felice Plates. # 45 , 100, dis 50 % Flies.	E M
Felice Plates	EE
Felice Plates. Files	COOL
H. Diaston & Sons	F
Heller Bros.' Flies	000
Stubs Stub	
Fagle 316 inch Roll	1
American, 4-in., \$4; 6-in., \$3.40; 7-in., \$4.50 each, dis 35, \$5. Domestic Fluter. \$1.50 each, net Geneva Hand Fluter, White Metal \$2 doz \$12. dis 25, \$5.	T
Crown Hand Fluter, Nos. 1, \$15; 2, \$12.50; 3, \$10.00 \$\psi\$ dos	F
Crown Hand Fluter, Nos. 1, \$15, 2, \$12.50; 5, \$10.00 \$\psi \text{des} \text{des} \text{os}\$ Shepard Hand Fluter, No. 85. per dos \$15, \text{des} \text{os} \text{Shepard Hand Fluter, No. 15per dos \$5, 50, \text{des} \text{os} \text{Shepard Hand Fluter, No. 05per dos \$5, 50, \text{dis} \text{ao} \text{Shepard Hand Fluter, No. 05per dos \$5, 50, \text{dis} \text{ao} \text{Shepard Hand Fluter, No. 05per dos \$15, 50, \text{dis} \text{ao} \text{dis} \text{ao} \text{conbined Fluter and Sad iron} \psi \text{dos} \text{\$\text{dos} \$\text{\$\tex{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$	E
Panagon	CH
Forks. # dos. #s. net Forks. Hay Manure and Spading	100
Fruit and Jelly Frences. Enterprise Mfg. Co	1
Burnished list as follows	- III
Catages	1
Wire, dis fo& to % Wire, Disston's dis 20 5 Wire, Wheeler, Madden & Co dis 10 5 4-1 milets.	
641milets. dis 40&10 % Nail and Spike, dis 40&10 % "Eureka" Gimlets dis 40&10 % "Diamond" Gimlets dis 10&10 % Double Cut, Shepardaon's. dis 40&10 % Double Cut, Hartwell's. dis 40&10 % Double Cut, Unatrwell's. dis 40&10 % Double Cut, Lyouglass dis 40 Bee." \$ gro. \$12.00, dis 25 % G.se. Pets. \$ gro. \$12.00, dis 25 %	No ma
Double Cut, Shepardson's	I
"Bee " Fro. \$12.00, dis 25	A
Family, L. F. & C. s "Handy" dis 25 % Family, L. F. & C. s "Handy" dis 30&10 % Grindstone Fixtures. Sargents Patent dis 20%10 %	F
Grindstone Fixtures dis 70&10 5 Brading Hardware Co.	A
Common C	F
U. M. C. P. E., 7688. 4.90 finiters. Covert's Pat. Rope	A
Covert's Pat. Rope. dis sc f Covert's Horse and Cattle Ties. dis sc f Union Pat. Rope and Web. dis sc f Union Pat. Rope and Web. dis sc f Union Horse and Cattle Ties dis sc f Hammers. dis sc f Hammers.	H
Cheney's, new list, March, 1883	CBB
Verree. dis 5 5 Magnetic Tack, Nos. 1, 2, 3, \$1.26, 1.50 and 1.75, dis 25&10 5 Nelson Tool Works	D
	FFP
Yerkes & Flumb	PHS
Mandias Door or Thumb Latches	M
Bronze from Drop Latenes doz \$0.80 @ c.gc net	T
Barn Door. W GOE \$1.60, dis 10&10 % Wrought Chest. dis 70 %	N
Surrace Chest dis cost to 5	B
boynton's Centennial Saw Handles	PDPC
Boyning and Betches	PWE

(.)	_
'atent Auger, Douglass'	C
"Atent Auger, Swan's	S
Himax (Anti-Friction)	N
terling Improved (Anti Friction)dis 5e&to 5 flottere	00
heritree dis os [dider's dis cost [dider's dis cost] S. S. din, \$12; 5 in., \$15; dis 65] he "Boss" dis cost [erry's Patent 5 in., \$12; 35 in., \$10; dis 40] Fronk No. 4, \$12; No. 5, \$14.40; No. 6, \$21; dis 50	00000
Fronk No. 4, \$12; No. 5, \$14.40; No. 5, \$21; dis 50 Harness Snaps.	T
Harness Snaps. unchor (T. & S. Mrg. Co.)	
'itch's (Bristol), list of 1% change to \$14.00.dis to 60 55 % lotchklas'	A
Andrews	-
Covered Spring, new list, Oct., 1882dis foot 10 %	E
tintcheta.	2000
Shingling, Nos. 123 # dos #7,25 \$8.00 \$8.75 Claw. Nos. 123 # dos 7.75 8.50 \$8.75 fathing Nos. 123 # dos 7.75 8.50 \$2.50	i
Shingling, Nos. 123	1
Lathing, Nos. 1 2 3.	i
Hurd's dls 30 % 35 % Shingling, Nos. 1 2 3 % dos \$8.00 \$8.50 \$8,00 Claw, Nos. 1 2 3 % dos \$0.00 0.50 10,00 Lathing, Nos. 1 2 3 % dos 8.00 8.50 0.00 Yerkes & Plumb dls 30 % 35 %	
Claw Nos. 1 2 3. # doz 0.0 0.50 10.00 Lathing Nos. 1 2 3. # dox 8.00 8.50 8.50 0.00 Yerkes & Plumb. dls 30 \$63 5.5 Shingling, Nos. 1 2 2. # dox 8.75 8.80 8.50 \$8.00 8.50 Claw Nos. 1 2 3. # doz 8.75 8.80 8.50 Shingling, Nos. 1 2 3. # doz 7.50 8.00 8.50 Shingling, Nos. 0 2 3.5 # doz 7.50 \$85.00 \$8.50 \$85.00 \$8.50 \$10.00 \$10.	
Simmons'	
Simpons'	
Drough Nos. 12 3.	
Lathirg, Nos. 123	1
Shinging, Nos. 123	1
Peck's Champion Blade	1
Madsworth'sdis 33% %	1
Wadsworth's Hingen # doz \$4.00 dls 5, 5 Gate, N. E. # doz \$7.70, dls 5, 5 Gate, N. E. # doz \$7.70, dls 5, 5 Gate, N. E. Reversible Gate, N. E. Reversible Gate, N. E. Reversible Gate, N. T. State Gate, N. T. State Gate, Automatic # doz \$1.2.60, dls 6, 5 Gate, Common Sense # doz pair \$2, 50, dls 6, 5	
Gate, Clark's, Nos. 1 2 3	1
Gate, Seymour'sdis 45&10 %	
Rolled Blind Hinges dis docto %	
Rolled Plate Rolled Raised	1
Strap	1
Screw Hook and Eye	
Screw Hook and Eye.	1
Socket @ dog &s as dis so \$	1
Scovill Patterndis 50 % Handled Planters'	1
Grub. Pdos \$11, dis 50 \$ Hooks. Bird Cage, Sargent's list. dis 60&10 \$ Bird Cage, Reading dis 60&10 \$ Cotton. F dos \$4.0, dis 50 \$ Cotton Patented (N. Y. Mallet & Handle W ks),dis 50 \$ Cotton (Humason & Beckley Mfg, Co). dis 40 \$	1
Bird Cage, Reading	1
Cotton (Humason & Beckley Mfg, Co)dis 40 % Belt	1
Cotton Fatonesi (S. I. saire &	1
Ciothes Line, Sargent's listdis 55&10 \$ Clothes line, Reading listdis 46&4x10 \$ Celling. Sargent's listdis 66&x0810 \$	
Harness, Reading list	1
McGill's, \$\(\)_{0.0} \tilde{\text{dos}} \te	1
ricture Hooks, Brown's Fat. Solid Brass, \$4.00 \), gross . dis 25 Lased and Picture Cf. & S. My. Co.)	1
Wrought Staples. Stanley's list	1
Whimetree—Patent. dis 406648 \$ Hooks and Eyes—Malleable Iron. dis 50&10 \$ Hooks and Eyes—Brass. dis 50&105	1
Wrought Staples, Staples, Staples, 1881	
Clinton, Plaili. * * 23c 21c 20c 19c 18cdis 30&10 \$ Clinton, Fin., * * 2c 22c 21c 20c 19cdis 30&10 \$ Easex. * * 3cdis 26c 20c 24c 23cdis 30&10 \$ Casex.	1
Putnam "270 240 220 210 200 190dis 5&7 % Vulcan, "260 230 210 200 190 180dis 1234 % Globe, "240 210 190 180 170 160dis 1234 %	
Globe, "	
New Haveh, "310 250 260 240 240 240 240	1
R. I. Horse Shoe Co., Perkins' Improve. Light, Medium and Heavy	1
Wule shoes # keg 84-37% Dunning's Steel # keg 90-35	1
Mule Shoes	
White's Sliding Head Picks. # doz \$2.5 dis 40 \$ Dunlap's Ring Picks. # doz \$2.5 dis 40 \$	
Iron Head Picks, Sargent's \$\Pi\$ doz \$1.25 dis 50\$10 \$\frac{1}{2}\$ doz \$1.25 dis 50\$10 \$\frac{1}{2}\$ lee Mallets. Pick in head \$\Pi\$ doz \$1.75 dis 15 \$\frac{1}{2}\$	1
lce Axes, Small Cast or Malleable. F dos \$1.20 dis 10 \$ Combination Ice Tools	1
Company Comp	1
racker's	1
Champion # doz \$6.00 dis 25&10 \$	1
Family	j
Knives.—Ames' Butcher Knives dis 20 5 Ames' Shoe Knives dis 15 5 Ames' Shoe Knives dis 15 5	-
Moran's Shoe and Bread Knives dis 20 \$ Hay and Straw, Wadsworth's dis 33½	
K Hobs. K Hobs. Carriage (Jap'd Soc ¥ gross) dis bok 10 % Base, Rubber Tip. dis 5-&to&to \$\$ Hemacite Door Knobs. new list, dis 3-&t \$\$ Door Mineral	and a
Hemacite Door Knobs	1
Door Por. Plated Same discounts as Door Locks.	1
Hemacite Door Knobs new list, dis 3625 \$ Door Mineral	1
Hemacite, Picture. dis 5ck 10 % Shutter, Porcelain. dis 5ck 10 %	1
adies. adies. adies. dis soëro 5 dieting, teading. dis yoëro 5 dieting, teading. dis yoëro 5 deting, P. S. & W	1
Meiting, P. S. & W	1
Nail City	1
Hurricane, No. 2 1, v dos, \$9.50; No. 2 \$8.5, net	1
Peerless, No. 5 dos \$11.75, dis 10210 %	1
Ambierus No. 0, 87.0; No. 1, 80.00 net	HH
Peerless, No. 5.	J

2, \$7,00; No. 3, \$7.50 \$ gross
Cotton Chalk
Wire Clothes, Galvanizedeach 2sc@4oc net Locks and Latches. Cabinet, Eagle) Changes made in list price of
Cabinet, Gaylord
Cabinet, A. E. Dettz
Langstroth & Crane's List, Jan. 1, '77: Round Key, Nos. 1 to 6
Fiat Key
"Shepardson "or "U.S." dls 35 % "Felter" or "American" dls 40810 % Plate
Barnes Mfg. Co
Norwich
Russell & Erwin
ware Mfg Co
Barnes Mfg. Co
Wm. Wilcox & Co
Conestoga dis 80 % candinavian (Moore Bros.) dis 80 %
A. E. Diets
Barnes Mig. Co
M Lignumvitæ. dis tc&to \$ Penfield Block Co., Lignumvitæ & Hickory . , dis 30 \$
Penneld Block Co., Lignumvike & Hickory dis 30 % Ment ("Butters, Dixon's(P.S.&W.)Nos. 1 2 3 4 4 5 Dixon's(P.S.&W.)Nos. 1 2 3 4 4 6 Miles' Challenge Nos. 1 3 3 4 4 6 Perry's.Nos. 1 2 3 4 4 8 Perry's.Nos. 1 2 3 4 4 8 Each
dox. \$22.00 30.00 40.00-dis 40 \$ Perry's.Nos. 1 2 3 4 4 g'rd 5 g'rd
Each \$3.00 4.00 5.00 11.00 13.00 30.00—018 25.65 % Woodruffs (P. S. & W.)Nos. 100 15.00 # dos \$15.00 18.00—dis 25.84 %
Hales'
Each . 80,00 74,00 80 00 224,00 100,00—dls 20 5 American
Each
Each
Kieser's Monarch
Pennsylvania
Beef Shavers (Enterprise Mfg. Co.)
3 blades, \$18
Cowles Hdw. Codis 55 % Wiolasses Gates Stebbis Patterns
Stebbins Genuine
Stepulis Hard Metal. dis cocio
Boas Nos. 1 2 3 4 doz. dis fostroŝto \$
Nuts and Wushers(In lots less than ice a w add lee to list; 1 lb. boxes, add ic to list.)
Hexagon Nuts 8c off list Washers 7%c off list
Table (Humason & Beckley Mfg. Co.)dis 33/5 X Blake's Pattern
Turner & Seymour Mrg. Codis 50 %
Best W m g c
U. S. Navy # D 5 C Navy # D 5 G Oilers.—Zinc and Tin dis 60 %
O Best. # B g c U.S. Navy # B 5 c Navy # B 64c Oliers.—Zinc and Tin dis 60 f Brass and Copper dis 50 f Malleable (Hammer's) # dos. \$c,oo, dis 10 f Prior's Patent or 'Paragon' Zinc dis 60 f dis 60 f dis 60 f
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I P. Torrey Rayor Co. dis :	6 4 Groom Show
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Repr. Mnfs' List. September 24, 1883 dis ic W Manila	Douglass' Spoons. Basting Solid Table a
Manila	c Britannia Reed & Barto Holmes, Boe
Manila, Hay Rope. # B 16 Sisal. % Inch and larger # B 10 Sisal. % inch # B 11	Holmes, Boe German Silv Cast Steel, Si Tin (P. S. & V
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Stanley	Nickel Plate
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seir Heatris, land Tollet dis 2c dleason's Shield and Tollet Olited dis 2c Mrs. Pott's Irons, Doubled Pointed dis 3c Mrs. Pott's Irons, Square Back dis 3c	Mindostan No. Sand Stone
Enterprise Star Irons, new list, July 20, 1992d. 3 5 Combined Futer and Sad Iron \$\psi \text{dis \$i\$.c.o, dis \$i\$} Chinese I.aundry (N. E. Butt Co.)	Washita Ston Washita Ston Washita Ston Washita Ston Washita Ston
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Baeder & Adamson's Filit, Assorted. 4.75 % ream Gaeder & Adamson's Star	Lake Superior Lake Superior Grindstones, Stove Pol
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Sash Cord. W b 13c ne common W b 15c ne Patent W b 2c ne disroct	New List,
Sash Cord.	Tinned Ameri Swedes Tacks American Cut Copper Tacks Swedes Hung:
### dis 15	Gimp and Lac
Clark's, No 1, \$40,00; No; \$60,00; No; \$	
Walker'sne Hammond's Window Springsdis 25; Northup Window Springs. No. 1, \$10.00 \$\overline{x}\$ grossdis 15; Northup Window Springs. No. 1, \$10.00 \$\overline{x}\$ grossdis 15;	Brush Tacks Leathered Car Cigar Box Nail Chair Nails
Ferguson's Murgiar Proof dis 352 Morris Burgiar Proof dis 355 Walker's Window Springs dis 356 Hammond's Window Springs dis 356 Common Sense, Japanned, Coppered and Sense, Japanned, Coppered and Common Sense, Nickel Plated. # gross \$0.00 ne Universal dis 357 Samb Weights. Solid Eyes, in soo b lots and over. # dis 305 Samb Weights. Miles "Challenge" dis 300, dis 305 Perry Draw Cut No. 4. sach \$300, dis 357 Enterprise life. Co. dis 257 Silver's dis 350 Saws. Circular, Mili and Cross Cut. dis 457	Tap Borer Common and I
Bash Weights. solid Eyes, in soo B lots and over	t Double-pointer Tap Borer Common and I Ives' Tap Borer Enterprise Mg Tapes, Me American
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Sa ws. Disston's Circular, Mili and Cross Cut. dis 40 Disston's Hand, Fanel, Rip, &c. dis 50 Roynton's Hand, Fanel, Rip, &c. dis 50 Roynton's Lightning Cross Cuts, new list. dis 40 Roynton's Circular and Mil. dis 40 Roynton's Lightning Hand, Panel and Rip. dis 25 Roynton's Lightning Hand, Panel and Rip. dis 25 Roynton's Lightning Hand, Panel and Rip. dis 25 Roynton's Lightning Hand, Panel and Rip. dis 30 Roynton's Lightning Hand, Panel and Rip. dis 30 Livingston's Butcher and Kitchen dis 30 Livingston's Framed Wood— Nos. 101 103 103 104 105	Toe Calks. Winsted Tinners' T
Nos 101 103 103 104 105 Per doz\$10.00 8.50 10.00 7.50 6.20 net Peace Circular and Mill	Toe Calks. Winsted Tinners' T Machines (P. S. & W Transom I Wollensak's P: Reiher's Paten
Livington's Framed Wood— 101 102 103 103 104 105 Per dos. \$10.00 8.50 10.00 7.50 6.00 net Peace Circular and Mill	Excelsior. Traps. Game. Newhou
Richardson's Hand Panel, Butcher and Web Saws	Traps. Came. Newhou Game, Oneida Game. Blake's Mouse, Wood, Mouse, Round Mouse Cage, W Mouse, Catchewouse, "Bonan Rat. "Decoy".
Baws dis 25 5 5 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	Mouse Cage, W Mouse, Catch-e Mouse, "Bonan Rat, "Decoy".
Baw Hods. Saw Feets. Boynton's Patent X Cut, per dos, \$12.00; Hand Snw per dos, \$10.00. dis 2, 5 sciliman's Genuine. \$0.00. od 35.00 stiliman's Genuine. \$0.00. od 35.00 stiliman's Imitation. \$0.00. od 35.00 Common Lever. \$0.00. \$1.00. Loach's. No 0. \$8.00; No 1. \$1.50. dis 20.00 Mash's. \$5.00. \$5.00. Mash's. \$5.00. \$5.00.	Lothrops' Brick av
8tillman's imitation \$\psi\$ dos \$2.00, dis 30\$20 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Disston's Brick Peace's Plaster Clement & May Rose's Brick
Hammer, Hotchkiss	Rose's Brick Brades' Brick . Worrall's Brick Garden. Triors. Butter and Che
Lisace	Penfield Block
	Vices, Solid Box Solid, Peter Wr Solid, Wilkinson Parallel, Fisher
Morrill's	Solid, Wilkinso Paraliel, Pisher Paraliel, Parkei Paraliel, Wilson Paraliel, Howar Paraliel, Berrili Paraliel, Backu Paraliel, Backu Paraliel, Prenti Paraliel, Simpos Saw Filers, Bon
Riehlé Bros dis 20 & 10 % Buffalo Scale Co. dis 20 & 10 % Forsyth Scale Co. dis 20 & 10 %	Parallel, Bonne Parallel, Merrill Parallel, Sargen
New York standard scale dis zoêrio \$ Howe's dis zoêrio \$ Chattilon's Grocers' dis 40 \$ Chettilon's Eureka dis 2 \$	Parallel, Backu Parallel, Double Parallel, Prenti
Chatillon's Family Favorite	Saw Filers, Bon Saw Filers, Stea Saw Filers, Hop
scale Beans, List of January 12, 1002	Saw Filers, Bon Saw Filers, Stes Saw Filers, Hop Saw Filers, Wei Cowell Hand Vi Richardson's Vi
Scale Beans, List of January 12, 1882. Ills socio 8 Scrapers. Scraper (S. R. & L. Co.), \$8.50, dis zo&10 5 Box : Handle. # dos \$4.00, dis 10 5 Box = Handle. # dos \$6.00, dis 10 5 Box = Handle. # dos \$6.00, dis 10 5 Box = Handle. # dos \$6.00, dis 10 5 Box = Handle. # dos \$6.00, dis 10 5 Box = Handle. # dos \$6.00 tell Box = Handle. # dos \$6.00 tell Box = Handle. # dos \$6.00 tell Box = Handle. # dos \$5.00 tell Box = Handle. # dos \$5.	Washer Cu Smith's Par Johnson's
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Screw Drivers. Screw Drivers. Ouglas Mfg. Co. dis sociote 5 Dission's . dis sociote 5 Dission's Patent Excelsion. dis sociote 5 Dission's Patent Excelsion.	Wire. Brass and Copp
Stanley Rule & Level Co.'s, Varnished Hdisdis 60&10 %	Market, Bright a Market, Copper Market, Galvan Market, Tinned,
w dos, 4 in. \$5.00; 5 in. \$10.20; 6 in., \$12.00—dis 35 \$	Stone, Bright an
hampiondis 25 %	Stone, Gaivania Stone, Tinned, T Tinned Broom Cast Steei Wire. Annealed Fence, Annealed Grape
### Note	Annealed Grape Fence Staples Fence Staples, G Stubs Stee: Wire Japanned Barb
Roung Head Brass, new list, Dec. 27, 1852 dis 45 % Grass and Silver Capped	Steel Music Wire
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dench, Iron	American Adjust Baxter's Adjusts Baxter's Diagon
and Rail, Sargent's	Wrenches, American Adjus Baxter's Adjust Baxter's Diagon Coes' Genuine Coes' Mechanic Coes' Pattern M. Coes' Pattern W. Girard Standard
ocrew Window Balances. L. B. Hugunin's, No. 1, \$2.10; No. 2, \$1.75; No. 3 \$1.50	Girard Standard Girard Agl Bemis & Call's Pr Bemis & Call's M Bemis & Call's Br
dis 20 gents. Hound Stead, Iron. dis 20 gents. Hound Stead, Iron. dis 5,65 to 8 tents. Hound Stead, Iron. dis 5,65 to 8 tents. Hound Stead, Bron. dis 2,65 to 8 tents. Hound Stead S	Bemis & Call's B Bemis & Call's Br Bemis & Call's Cy Aiken Pocket (Br The Favorite Poc
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Orgers, \$3.50. dis 25	Universal XX, N Peerless, no Cegs Peerless, with Co Peerless, with Co
Vins, J., & Sons' Tailors' Shears	Peerless, with Co Peerless, with Co Peerless, with Co Peerless, with Co Eureka, No. 2
Sheaves. iding Door, M. W. & Co list	Eureks, No. 2 Novelty No. 2, for Novelty No. 3, for Excelsior No. E. Excelsior No. A. Excelsior No. A.
iding Shutter R. & E. 11stdis 50&10&2 \$	Excelsior No. A.

	THE
Silding Shutter, Sargent's list dis 6ox silding Shutter, Reading list dis 6ox sucre's Anti-Frictios (Flanzing) dis Shovels and Spasdes. In Spasdes dis Spasdes di	nenry
Silates. Gls Repair Re	70 % 10 %
Stearns	25 % 10 % 10 %
Cast Steel, Silver Plated. dis 33 Tin (P. S. & W.), Teas. \$1.25 \(\pi \) gross, i Tin (P. S. & W.), Tables \$2.00 \(\pi \) gross, i Tin (Cowles Hdw. Co.). dis s Tin (Cowles Hdw. Co.), case lots. dis s Squares. Steel and Iron. dis so&to& Nickel Plated. dis co&to&	KEYST
Squares, Steel and Iron	TOOLOT
Stense Hindostan No. 1, 6c; Axe, 8c. dis 43 style	eet leet o A o A o A o A o A o A o A o A o A o A
Grindstones, Family, Loring's	Front and PHILA
Common and Patent Brads Common and Paten	Branch Works:
Gimp and Lace Tacks, Trined dis 30 x Finishing Natis dis 34 x Trunk and Clout Natis dis 34 x Trunk and Clout Natis dis 32 x Basket Natis dis 30 x Basket Natis dis 30 x Basket Natis dis 30 x Called Natis dis 30 x Called Natis dis 30 x Cligar Box Natis dis 30 x	SA
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Well Wheels	Trowels, Post Hole Di Saw Clamp Saw Set Screw Slat
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mis & Call's Mercato Debteriors	The Manufa firm have secur Premiums at World's Fairs, v
ylor's Farmers	been exhibited.
velty No. 2, for Common Tubs	All Goods

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Plumbs & Levels, Pointing, Plastering and Brick Trowels,

Post Hole Diggers,

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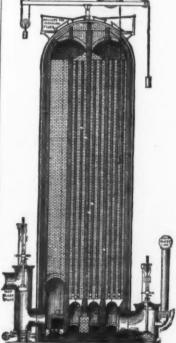
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N. B.—This Saw is manufactured under patents dated May 1st, 1877. Any infringement of the me will be prosecuted to the full extent of the law. None genuine unless labeled ** GRIFFIN."

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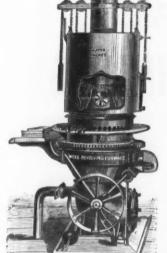
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separated (to use one separated (to use of the spade's tor filling in the ground, the pick for dislodging stones or o her obstruction, or the tamper for packing the ground around the post is a point of great merit. The blades are made of cast steel, and the irons of the best melleable, sufficiently strong to resist all strains. With this digger a man can easily dig a hole thirty inches deep, nite inches deep, nite inches demeter, in hard ground, within three minutes. It will work in all soils. No fence-builder, nurseryman, farmer or railroad company can afford to be without it. Price to the Trade,

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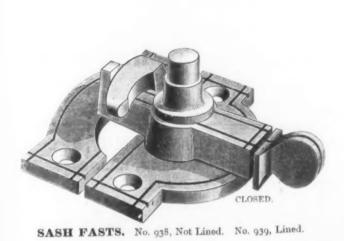
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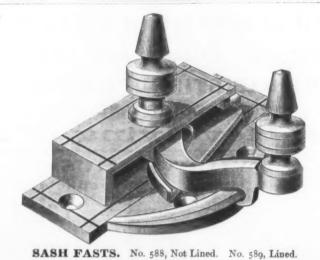
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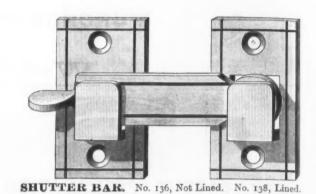
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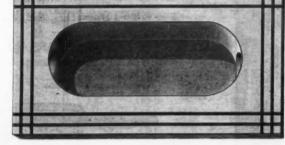
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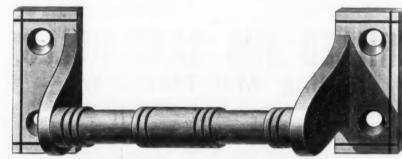












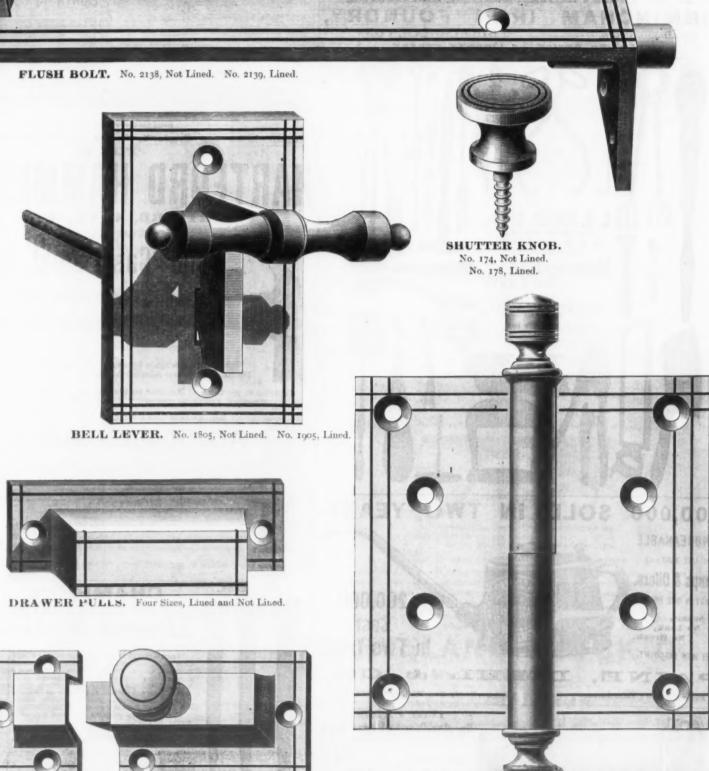
SASH LIFT. No. 833, Not Lined. No. 834, Lined.

SASH LIFT. No. 1887, Not Lined. No. 1987, Lined.

WINDOW PULL. No. 813, Not Lined. No. 814, Lined.



PUSH PLATE. No. 841, Not Lined. No. 846, Lined.

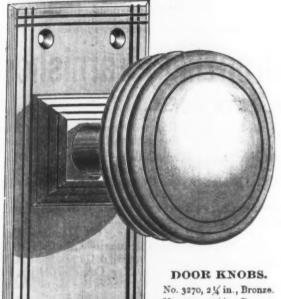


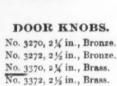
CUPBOARD CATCHES. No. 821, Not Lined. No. 822, Lined.

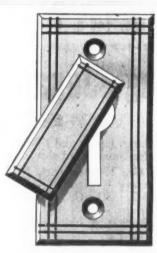


LOOSE PIN BUTTS. No. 843, Not Lined. No. 844, Lined.

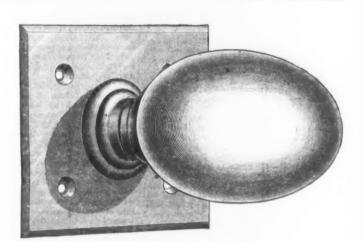
Mallory, Wheeler & Co.'s HIGHLY POLISHED Gold Bronze Metal or Brass DOOR TRIMMINGS.



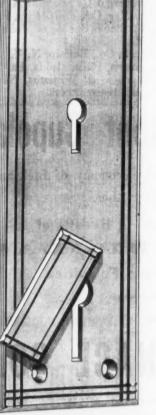




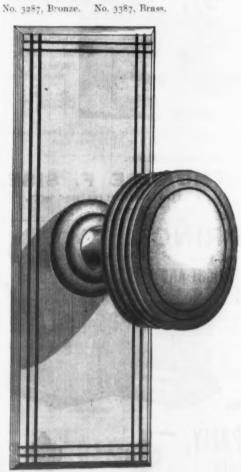
No. 3290, Bronze. No. 3390, Brass.

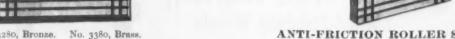


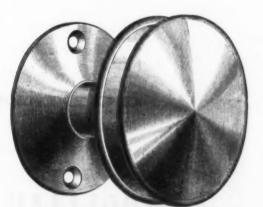
No. 3066, Bronze. No. 3166, Brass.



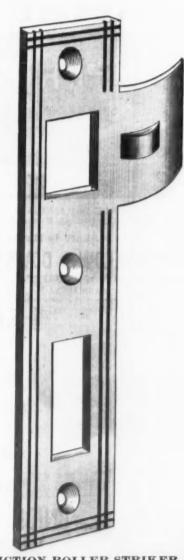
ROSE AND ESCUTCHEON COMBINED. For Front Door Locks. No. 3286, Bronze. No. 3386, Brass. For Vestibule Latches.



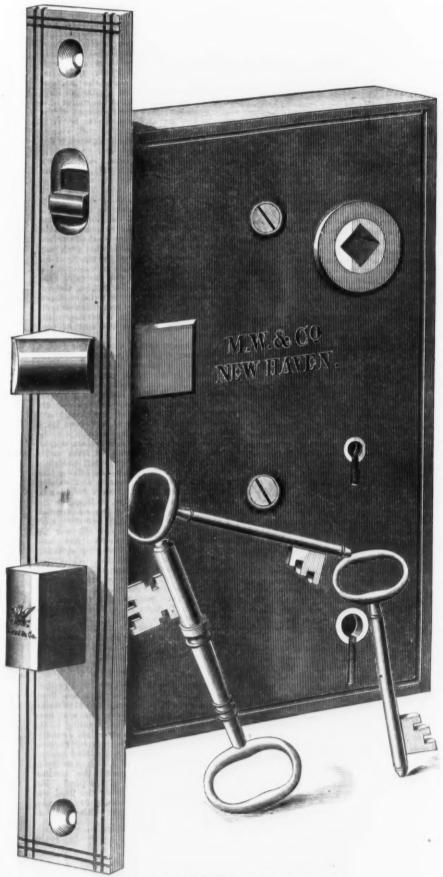




NEW SQUARE EDGE KNOB. No. 3071, Bronze. No. 3171, Brass.







VESTIBULE LATCH. | No. 3202, Bronze. | FRONT DOOR LOCK. | No. 3202 1/3, Bronze.

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The Growth of Railway Appliances.

At the recent meeting of the British Assoeiation for the Advancement of Science, Mr. J. Brunlees, president of the Mechanical Science Section, delivered an interesting address describing the growth of mechanical appliances for the construction and management of railways. According to the particulars submitted, it appears that from the opening of the first railway to the present date, a period of only about 60 years, remarkable progress bus been made in all branches of railway line from a mere plank of wood or iron plate to a rail laid on stone or wooden sleepers, from the rail with a flange to the smooth rail and the flanged wheel, were early and important, but now appliances for the construction and managewhee', were early and important, but now alr ost forgotten, steps in the progress of the ystem. The substitution of the flanged wheel for the flanged rail was an organic change which has been the forerunner of the great results accomplished in modern traveling by railway. After the flange had been abolished from the rail, the form of the rail itself took a good while to settle, and even now there is no universal form of rail, though in Great Britain and in British colonies the double-headed rail generally prevails, and on the Continent the flat-footed or Vignoles rail. At the outset the rail was a mere bar of cast iron, with a surface sufficient for the wheels to roll on, and with a with day, anough to rive strength to specify rib deep enough to give strength to sustain the load. Cast-iron chairs were used to hold the rail in position, and as, owing to the nature of the material employed, these chairs were frequently injured, the first efforts for the improvement of the rail were directed to dispensing with the chairs. But the forms of rail introduced for this purpose did not effect their object. Mr. Locke intro-duced the deable-headed rail, the ends of which were at first made to rest in the chair, but the effect of this plan was found to be that the rails were speedily worn at the emils, and they had to be replaced. The fishplate was introduced to remedy this defect.
The fish-plate was a great improvement in
"ne permanent way of railways.

About 30 years ago, when the traffic on
railways had been very largely developed,
the parts of the permanent way which had
at first been thought most likely to be the

most enduring, the rails themselves, were found to be more rapidly worn away than found to be more rapidly worn away than was expected. Efforts were made to harden the surface of the rails, and a plan was introduced for this purpose. It was extensively used where rails were subject to tensively used where rails were subject to special wear and tear at points and crossings. The conversion was easily effected. It cost only about \$5 a ton, and it was estimated that it doubled the durability of the rails. If they were turned, of course it increased their durability three times. The plating of rails with a steel surface was probably begun about 1854. It was not till about eight or ten years later that the rails were made entirely of steel. In May, 1862, steel rails were laid down experimentally at steel rails were laid down experimentally at Chalk Farm Bridge, England, side by side with two ordinary iron rails, and after out-lasting 16 faces of the iron rails they were taken out in August, 1865, the one face only, which had been exposed during a period of more than three years to the enormous more than three years to the enormous traffle, amounting to something like 9,550,000 engwes, trucks, &c., and 95,577,240 tons, although worn to the extent of little more than 4 inch, even then appeared capable of enduring a good deal more work. Steel rails, however, were dear at that period, costing about double as much as iron rails; therefore, although their advantages were manifest, they could not all at once replace iron. In 1866, Mr. Webb, the locomotive engineer of the London and Northwestern Railway, said they had in use 300 tons of Railway, said they had in use 3000 tons of steel-headed rails, and about 50 miles of steel rails, and Mr. Harrison, of the Northeastern, said he had just contracted for 500 tons. Now, owing to the improvements in the manufacture of steel rails, they can be produced as easily and as cheaply as iron rails. It was observed in 1876 that if, in order to fully realize the effect of the enduring quality of steel rails, you take a given section of the busiest portion of one of our leading railways, over which upward of 7,000,000 tons of live and dead weight pass annually, you will find that the life of a steel rail on that portion of the line would be 42 years if the traffic remained the same.

When railways were first opened they were worked without any fixed signals, unless a candle plac ed in a station window the Stockton and Darlington line may be so designated. The candle indicated that the designated. The candle indicated that the train was to stop for passengers, and no candle implied no stoppage. No practical steps were taken toward the adoption of fixed signals till the opening of the Grand Junction Railway in 1838. The signal then used consisted of a disk fixed to a spindle, with a handle to turn it, with a lamp at night to answer the purpose of the disk by day. This was a mere "dauger" and "safe y" signal. In the same year Sir John Hawkshaw designed a disk signal attached to movable rails for the Manchester and Bolton Railway, which was set in motion by Bolton Railway, which were opened to so that when the switches were opened to the si ling, the face of the disk was presented; and if the switches were open to the main line, the side of the disk was presented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the sented; and if the switches were open to the side of the disk was presented.

Sented:

S Bolton Railway, which was set in motion by a handle with a balanced weight attached, came apparent that not only must separate signals be given for different lines, but that some kind of concurrent action must be sesome kind of concurrent action limits to secured between signals and switches, to prevent accident. Now in long glass houses, built high above the line at important junctions, are long rows of levers. It is with these handles that the signal man inside the glass house sets the semaphore in motion, and at the same time opens the points to and at the same time opens the points to direct the train on to a particular line, and perhaps simultaneously close, or lock, the points of a branch line, thereby preventing the possibility of a second train coming on the line previously occupied. When the lever is once drawn over, a mechanical contrivance called a "locking bar" prevents the points being moved until the whole of the train has passed. In fact, with the present apparatus for signaling, the number of trains that may be safely worked on a

lime of railway is enormous. Audible signals are in use only in foggy weather, and the detonating signal designed by Mr. E. A. Cowper, in 1817, continues to be generally employed in Great Britain for that purpose.

The subject of brake-power is one to

which very great attention has been given, and next to the condition of the permanent and next to the condition of the signal apparatus, perhaps nothing in connection with railways is of greater importance. The higher the speed and the heavier the train the greater the necessity for a powerful and simple brake, capable of being applied throughout the train in the shortest possible time. All recent efforts for the improvetime. All recent efforts for the improve ment of brakes appear to have been devoted to making the action of the brakes automatic and to increase the rapidity with which they can be applied.

As to tunneling, it should be remarked that many forms of machine drills have been invented by which this process is shortened. In the construction of railways and docks one of the most expensive and tedious operations is the excavation of the soil. Where labor was comparatively scarce and inefficient, efforts were made at an early period to supplement, and, if possible, supersede, such manual labor by mechanical contrivances. In 1845 a mechanical excavator, after an American model, was used on the Eastern Counties Railway with a cer-tain amount of success. This machine delivered as much as 100 cubic yards an hour at a cost which did not exceed 50/a day. In principle, and generally in detail, it is very much the same as the excavator which is commonly known as the "steam navy" at the present day. The machine was locomotive, and had three other kinds of motion motive, and had three other kinds of motion—first, thrusting the scoop or shovel into the earth; second, lifting the scoop when filled; and, third, turning round on its center to deposit the earth in the wagons. At that time 13 of these machines were in use in the United States; but they have not superseded manual labor in making cuttings and embankments there, and they have been little used here until recently, and even now they only compete successfully with bone and muscle under special circumstances. It is found economical to employ the steam navvy where there is a large quantity of hard and heavy clay or alluvial soil to excavate, and where the machine will not only effect a gross saving per day, will not only effect a gross saving per day, but mearly pay for its cost in the course of a single contract. The disadvantages of the machine are that it is costly, very heavy to move, requires special plant to work with it, is not readily saleable when the work is finished. ished, and costs a good deal to keep in repair. On the other hand, it will work repair. repair. On the other hand, it will work night and day without trouble, it renders the contractor independent of a large amount of hand labor, and it will work readily in soil with which it is extremely difficult for manual labor to deal. It is much to be desired that the human frame should be relieved of the exhausting labor. should be relieved of the exhausting labor which makes man a mere beast of burden, and leaves him at the end of his work only fit to lie down and sleep off the effects of his toil, and to regain strength to continue the same round of labor on the morrow. The use of small locomotives for tipping the soil for embankments has relieved the workmen of one very laborious and sometimes dangerous occupation, and, in a corresponding degree, has diminished the cost of con-

In the construction of a railway or dock a large amount of pile-driving is frequently necessary, and the manner of sinking piles has been much considered by engineers, for the purpose of obtaining rapidity and economy in executing their work. For some purposes, where piles were formerly used cylinders are now sunk, and the manner of sinking them, and their form and material, have been much studied. For fine sands, disk-pile may be used lowered into the sand by its own weight, used lowered into the sand by its own weight, as fast as the sand is removed from under the disk by a jet of water forced through a tube opening at the foot of the pile—a plan which has been applied notably at the Calais Harbor works. Iron cylinders for foundations were first used by Mr. Redman, on the Thames, at Gravesend, for the construction of the Terresco wiser in Isla and they have of the Terrace pier in 1842, and they have since been largely employed all over the world. Many improvements have been made in the methods of sinking cylinders since their first introduction, when they were snnk into the yielding soil by pressure from above. The first practical application appears to have been made in 1839, at Châious, where it occurred to the engineer to cover over the top of the cylinder, and by the pressure of the air to drive out the water and admit the workmen inside to re-move the earth, and gradually to allow the cylinder to sink into its place.

The California Quicksilver Trade. The exports of quicksilver from San Francisco in September amounted to 4232 flasks, exclusive of any shipments that may have been made by rail The quantity is the largest for any month since last January, and is 1800 flasks more than for Septem-

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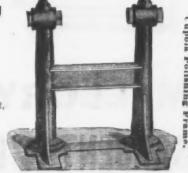
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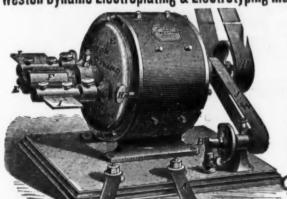
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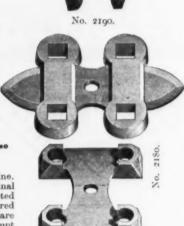
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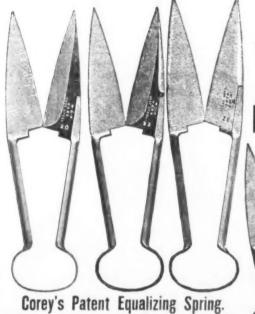


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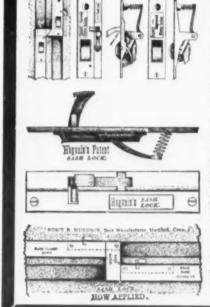
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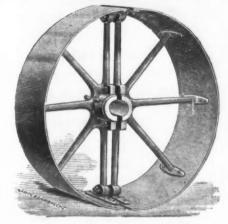
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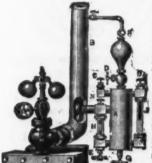
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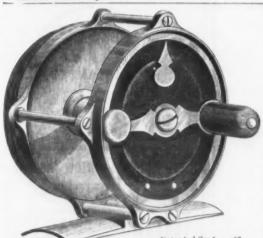
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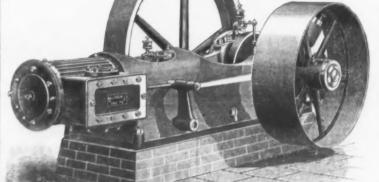
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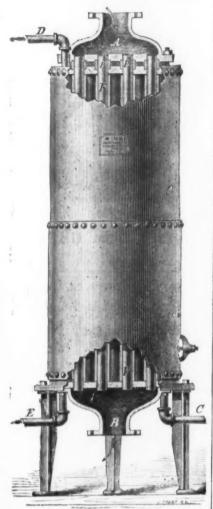
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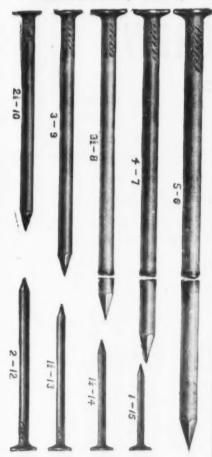
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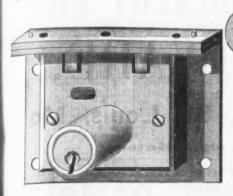
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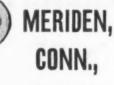
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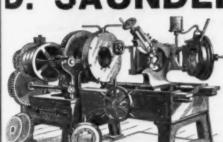
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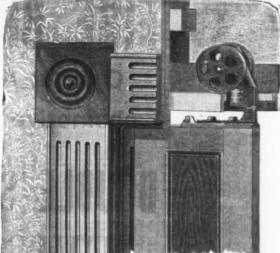
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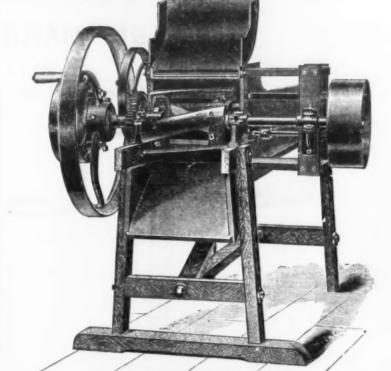
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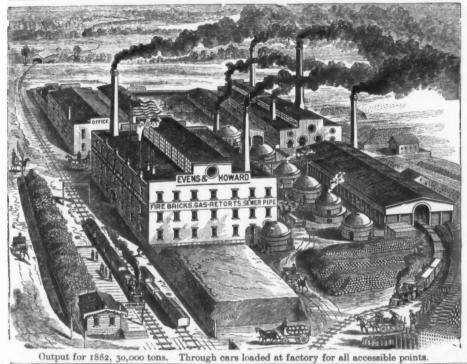




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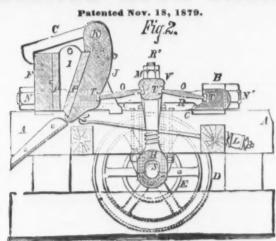


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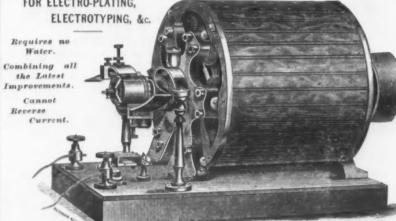
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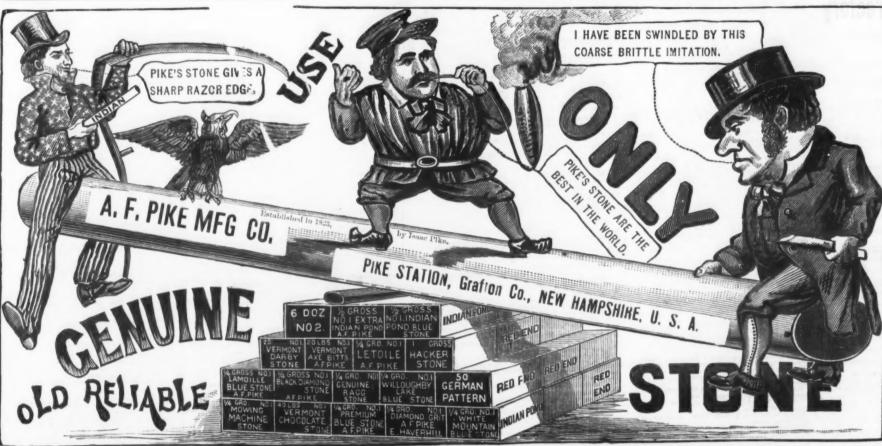
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Air Compressors. Clayton Steam Fump Works, Brooklyn, N. Y62 The Norwalk Iron Works Co., S. Norwalk Conn62	Conway T. G., 38 Chambers, N. Y. Clatworthy F. & W., 32 Chambers, N. V.
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Anvils. Manufacturers of. Boker Hermann & Co., for and seq Puane, N. Y37 Cheney Anvil & Vise Co., Detroit, Mich	Millar Chas. & Son, Utica, N. Y
Cheney Anvil & Vise Co., Detroit, Mich	White Mfg. Co., Bridgeport, Conn
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6	Lundeli, Chas. G. (Swedish), Boston, Mass	Refractory Compounds. Henderson James, Belifonte, Pa
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.17	Montgomery & Co., 105 Fulton, N. Y Pierson & Co., 24 Broadway, N. Y
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h. 13	Co-operative Iron and Steel Works, Danville, Pa
. 4	Johnstown, Pa
. 16	Soles I. Manulacturers. Steel Manulacturers. Albany & Rensselaer Iron & Steel Co., Troy, N. Y. Anderson, Du Puy & Co., Pittaburgh, Pa. Burrows Thos. C., og-tof John, N. Y. Chrome Steel Works, Brooklyn, N. Y. Cleveland Crucible Steel Co., Cleveland, O. Cleveland Rolling Mill Co., Cleveland, O. Cooperative Iron and Steel Works, Danville, Pa. Gautler Steel Department of Cambria Iron Co., Johnstown, Pa. Jessop, Wm. & Sons, Sheffield, Eng., of John, N. Y. Midvale Steel Co., Nicetown, Pinia, Ps. Selessop, Wm. & Sons, Sheffield, Eng., of John, N. Y. Miller, Metcail & Parkin, Pittaburgh, Moss F. W., So John, N. Y. Naylor & Co., og John, N. Y. Naylor & Co., og John, N. Y. Soviand W. & Starvey, Frankford, Phila. Bowland W. & Harvey, Frankford, Phila. Somith, Win. & Harvey, Frankford, Phila. Somith, Sutton & Co., Pittaburgh, Ps., Singer, Nimick & Co., Pittaburgh, Ps., Spencer Matthins & Son, Sheffield, England, Sidmaard Steel Works, Philadelphia, Ps., Temple & Lockwood, 12 Plats, N. Y. The Bolton Steel Co., Canton, O. Vought & Williams, 389 Greenwich, N. Y.
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. 6	Steel Spiral Springs. Manufacturers of. Cars & Moen, 234 W. 20th, N. Y. Chatilion John & Sons. of and 54 Cliff. N. Y. Rowland wm. & Harvey. Frankford, Phila
.13	Chattion John & Sons, of and Sq Cliff, N. Y. Rowland wm. & Harvey, Frankford, Phila
13	Steel, Tool.—Brown & Co., Pittaburgh, Pa. Jessop, Wm., & Sons, Sheffield, Eng., 91 John, N. Y. Tempie & Lockwood, 12 Flatt, N. Y.
.63	Stocks and Dies.
.40	Stocks and Dies. Hart Mrg. Co., Cleveland, O., Wiley & dussell Mrg. Co., Greenfield, Mass Stoves and Ranges.
. 35	Michigan Stove Co., Detroit. Mich
48	Stove Trucks. Tucker Alarm Till Co., Indianapolis, Ind
-54	I sie Caster Co., New daves, Cons
64	Streps, Hazer. J. R. Torrey Rasor Co. Worcester, Mass Tacks,—American Tack Co., Fairbaven, Mass
. 67	Cobb & Drew, Plymouth, Mass. Florence Tack Co., Florence, Mass. Grundy & Disosway, 184 Greenwich, N. Y. Phillips E. & Sons, South manover, Mass.
.62	Grundy & Disosway, 164 Greenwich, N. Y
, C.C.	Taps and Dies. Carpenter J. M., Fawtucket. R. I Manning, Maxwell & Moore, 111 Liberty, N. Y Wiley & Russell sifg. Co., Greekfield, Mass
	manning, maxwell & moore, III Liberty, N. 1
64	Wiley & Russett Mfg. Co., Greenfield, Mass
69	Taps and Reamers. Kedfield J. E., Essex, Conn.
63 63 .69 .63 .64	Taps and Reamers. Kedfield J. E., Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa.
64 13 69 .49	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richle Bros., Philadelphia.
63 63 64 .26	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richle Bros., Philadelphia. Tire Upsetters. Little Ginnt Mr. Co., Millipott, N. V.
63 63 .69 .63 .64 .26 .7	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Thius & Co., Philadelphia, Pa. Richie Bros., Philadelphia. Tire Upsetters. Little Giant Mg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y.
64 13 69 .69 .63 .64 .26 .7	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Thius & Co., Philadelphia, Pa. Richie Bros., Philadelphia. Tire Upsetters. Little Giant Mg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y.
64 . 26 . 7 . 47 . 7	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richie Bros., Philadelphia. Tire Upsetters. Little Giant Mfg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y. Teols, Steam and Gas Fitters'. Eston, Cole & Burnham Co., & John, N. Y. D. Saunders' Sons, Yonkers, N. Y.
64 63 64 67 67 68 61 61	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richie Bros., Philadelphia. Tire Upsetters. Little Giant Mfg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y. Teols, Steam and Gas Fitters'. Eston, Cole & Burnham Co., & John, N. Y. D. Saunders' Sons, Yonkers, N. Y.
64 63 63 64 7 47 47 47 47 61 8 8 8 9 61 8 9 61 8 9 9 9 9 9 9 9 9 9 9 9 9 9	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richie Bros., Philadelphia Tire Upsetters. Little Giant Mrg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y. Teols. Steam and Gas Fitters'. Eaton, Cole & Burnham Co., & John, N. Y. D. Saunders' Sons, Yonkers, N. Y. Transom Lifters. Keiber F. A. & Co., Chicago, Ill. Wollensak J. F. Chicago, Ill. Tree and Fost Blode Diggers.
64 63 64 67 7 61 9 6 6	Taps and Reamers, Redfield J. E. Essex, Conn. Tea and Coffee Pots. Purvis R. C., Philadelphia, Pa. Testing Machines. Olsen Tinius & Co., Philadelphia, Pa. Richie Bros., Philadelphia Tire Upsetters. Little Giant Mrg. Co., Millport, N. Y. Tool Chests American Tool Co., 116 Chambers, N. Y. Teols. Steam and Gas Fitters'. Eaton, Cole & Burnham Co., & John, N. Y. D. Saunders' Sons, Yonkers, N. Y. Transom Lifters. Keiber F. A. & Co., Chicago, Ill. Wollensak J. F. Chicago, Ill. Tree and Fost Blode Diggers.
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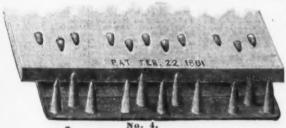
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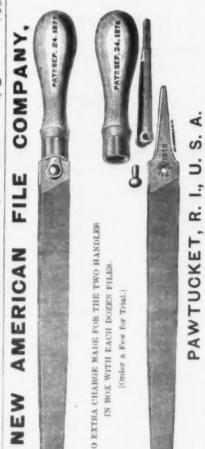


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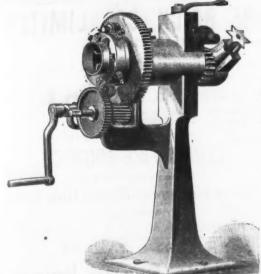
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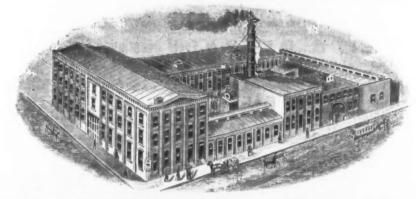
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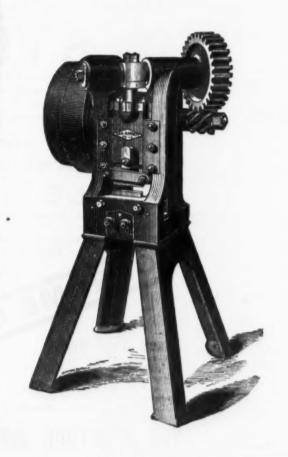


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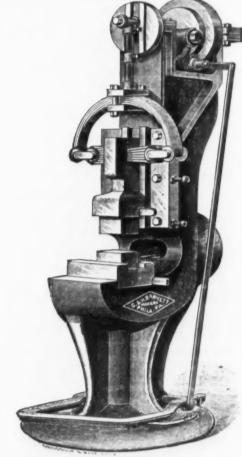
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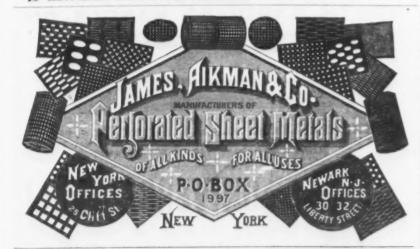
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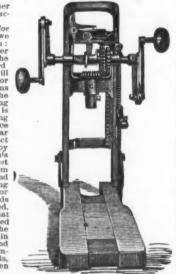
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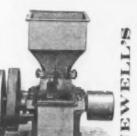


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	ves		• • • •		0.0		80		7.00
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Locks and H. nobs.	ves	0 0 0 0	0.	4.0.0	0.0			1	7.00
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Lanterns.
Buckeye
Tubular No. 0. \$7.50: No. 1. \$0.00 W downest
Guards, 40cents extra.
Lawn Mowers, Pennsylvania) new list
Philadelphia
Excelsior. dis 30 %
Holiand Patent
Nattocks.
long and Short Cutternew list so
Pennsylvania Pattera dis so \$
Molarson Gates.
Enterprise Mfg Co 's Measuring Paucets.di - 30810 8
Stebbins' Gatesdis 7.00 10%
Lincoln's "dis 60&10 s
Landers. Frary & Clark's Petroleumdis 20&10 \$
Brass Liquor Cocks, new list Jan. 1 188a dis 55 % Cork Lined
Ment Cutters.
Dixon's
Woodruffdis 2545 \$
Stowedis 254c 6
Hale's new list, dis so rod's cash
Americandis 20810 4
Stuffersdia 25&5 S
Enterprise Stuffers
Planes.—Sandusky Tool Codis 20 %
Oronts
Bailey (S. R. & L. Co.)dis 20 %
Plane Irons, -Ohio Tooi Co dis zerio s
Butcher's Storate to P
Plumbs and Levels.
Stanley's Adjustable
Non-Adjustabledis 65210 S
PleksNew list 50 \$
Razor Strops.
Lamont Combination

Buckeye.

35.00 dis 60 %

Pattions Company	1010-0111			mer tot	# # LOO
I - In . I I West owner	0.1		· · · · · · · · · · · · · · · · · · ·	oss lots	842.00
Imitation Emers	PEL			De P de	M. 2.00
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Stanley Ivory					in ccs
steetyards,-Har	r.s Lari	ern		din 4	2 0130
₹ dos814.4	17.7	31 00	26,50	31 00	36.50
Lba 50	100	140	200	250	300
American Pattern				4110	marine of
ir dow	80.25	13.75	E.C. Fain	16.00	20 50
Lbs 50	100	150	200	250	900
TORRESON.					
Steel and Iron	110 50 ; 1	full case	s. diasol	troke for	reach
Try Squares, Stan	ley			dia c	Dans.
Dission's Try Sou	area			A	Se 10
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Sharpened				dog se	to (00
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Duston's Circular			and adding.	di-	W 20. S
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C1 0000 C1	Pater	t Toot	A DOGE.	d	Se 40%
86	Cham	pion T	angle	d	18 40%
Boynton's Lightn	ne Ceo	on Care	PLOTES MA		RN 402
" Lightni	ng Bno	ir Sawa	SPEAN 178	bard	In 40 %
		-	Cross	Olerdi	18 40 5
Shovels and Spa	des.				
Oliver Ames & Bot	LS. BOW	lint		di	8 21 8
Griffiths				dis 506	E SORES

Boynton	's Lightning Cross Cut, new listdis 40 % Lightning Buck Saws, cross bardis 40 %
Griffiths.	mes & Bona, new list
Ars. Pot	a.—4 to 10 lbs
Washita	Rxtra
10 10	No. 2
5.0	an Oil Stone No. 1 P 20 6c / Ave Stone
Flat Home	Iron, new tist Dec. 27

1	Round He	ead Bras	s. new	list De	C. 27	dia	. 35
-	Round h	eau tros	, new	1700	A7	dis	. 40
1	Plated					die war	Arr.
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1	Gem No.	3 small .	lap d .		\$2.00	die so A	10
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150	Dixon Fire Fiy. Tacks Show Nail	InhG	em		. F gross	s, \$1,50, d	la s
	Fire Fire					6,00, dl	8 10
1 7	Packe.	********	*** ****			3.00 gros	s ne
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1.6	laes,-So	nd Box	Trento	on new	Hat	dis	45
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1		60	No 19	to 26		dis box	265
	Commond		NO. 27	to 35		dis 6254	1570
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1	Gatvanie	nd Back	Wilms.			.CIM 57560	gov.
1	Gaivanize Painted F	larb Wh	VY 15 C .				17.73
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V	Vringer	N.					
1	Peeriess !	No. 216					\$42.0
		(O. 2					45 0
1	Universa	I No. 256.					42.0
1	Novelty !	NO. 2		on turk			450
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For fluctuations and discounts on card rates see weekly Pitts-burgh Trade Report. The fellowing are card rates.

the It howing are card rates.
Flat Bar.
136 to 4 by 36 to 1 inch
454 to o Dy 96 to 1 "
1% to 6 by 1% to 1% "
134 and 136 by 36 to 36 "
4)4 to 6 by 14 to 14
% % and % by % to % inch 2.
Mounds and Squares.
1 to 136
2 10 296
284 to 284 2.00 84
2% to 3%3.cc %3.s 3% to 43.50 5.153.
45 to 5
10 to 24
% to 34
Oval Iron.
34 to 134
96 to 36
Half Oval and Half Round.
Half Oval and Half Round.
% to % " 3.70 % "
% to 114 by 5-16 to 34 inch
Wagon Box Iron.
% Inch. Nos. 13 and 14
" " II and 12
13 and 14
to to and to
11 and 12
52 " " 13 and 14
The state adversariant and a second and a second and a second as a
Heavy Bande.
314 to 6 by 14 and 5-16 inch
136 to 356 by 36 and 5-15
1 to 1% by 4 and 5-10 "
1 to 3 to
% and % by % and 6-16 "
Light Randa
156 to 6 by 56 to 3 - 16
1% to 6 by Nos. 11 and 12
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1-100 per in, extra will be ch	UNINCU FOR CA	ich gauge
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1-10c per lb. extra will be char	ged for ents	ing Hoons
to specified lengths.		ma aroopo
Barrel Hoo	91.0	
1% to 2 in., cut to		
o to II lbs, per set of 6 hoops	********	3.50
bs. and less than 9 lbs. per se	t or a hoops	
Less than lbs. per set of 6 hoops	************	3.56
Extras for Cutting to Length	all Precedin	g Iron.
All Iron, including Tire	********	901-1
Tank Iron		
No. 9 and heavier		9 90
Plow Slabs		3.30
" Wings		
Sheet Iron	l.	3.80
Common.	Charcoal	Juniata.
No. 10 to 143.50	6.0C	6,50
No. 15 to 173.8c	4.10	6.60
No. 18 to 214.10	5.30 5.8e	7.10
No. 22 to 24	5.80	
Many and and address of the control	2.00	7,30

No. 18 to 21	5.80	2.4
No. 22 to 244.36	5.80	7.3
No. 25 & 26	6.og	7.4
No. 274.70	5.80	2-7
No. 28 510	0.60	8.1
All shee, s No. 18 and ligi	ater, over 30 inches	Wide
not less than 2.100 extra.		
	Planished Sheet.	
Galvanized C. H. B(Cha	rcoal Hammered Blo	ooms.
Nos. 14 to 20120	No. 27	15
Nos. 21 to 24	NO. 28	16
Nos. 25 and 26 140	No. 29	18
45 6 47% % discount.		
	Iron.	11-13-9
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154 185CH
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156 By I III. II, for Fiber Elandres
rie by ht
100 00 20 11
196 by 96
T Rail.
a lbs. to the yard age so lbs. to the yard
16 4
Splice Joints for 12, 16 and 20-lb. Rail, 40c each
Bpince Junio 101 12, to and sorter read, on each
and to lb. Hall, son each : to lb., ooc each.
and and to Cathon for an and of the Rail
314 by 14 and 14 Spikes for 20 and 28-1b. Hail
234 and 3 by 36 " " 12 and 16-lb, "
25a by 5.16 " 8-1b. Rail
Flat Rails.—Punched and Countersunk.
136 to 2 by 36 to 36 inch

and to lb. Hall, so, each : to lb., too each.
35 by 16 and 16 Spikes for 20 and 28-lb. Hail
256 and 3 by 36 " 12 and 16-1b. "
2)9 by 5 10 " 8-10. Rail
Flat Rails.—Punched and Countersunk.
136 to 2 by 1/2 to 1/4 inch
150 by % and 7-10 inch
154 by \$6. 7-10 and 50 inch
Juniata Nail Rods 6.40
Norway "
Buard Iron %x%x% and %x%x%
" \$4x96x9-16 and \$6x96x564.20
Drag Bars 3-30
Dropper Bars''', 3.8c
Cartifolder and Landelde Inch

See Pittsburg		1		ı	ю	r	t.															
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Square	e. Flat.	0	ю	ţc	ij	Je	H	b	a	n	d	١.	R	0	N	9	16	Ī.				
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3-16 and 514 to 6 "	
5-32 inch	
1/4 inch	
5-32 inch. 56 inch. Oil Well Steel Forgings	
Machinery Steel	
	Bessemer &
Crucible,	Open Heart
Ordinary Sizes. % to 2 inch	
Round slike	#3ort
5-16 and 21/4 to 3 inches 61/6c	4160
4 and 314 to 6 " 714c	616c
7-32 Inch oc	70
4-10 " 11C	90
Square, Flat and Octagon, 1/2 extra	throughout st
Cut to specified lengths, 16c extra.	
Hammer Cast Steel	

Crucible Cast Steel. Open Hearth Cast Steel. Sheet Steel.—Urucible.	
Best, 2d Qual, 3d Qual, To 21 gauge11e 10c 8e 1c. extra for each additional gauge. Cut to multiples or specified lengths,	Ressemer & Open Hearth 6c
Muscellaneous Cast Steel.	
twin Obsert de Ber Hiller :	eccessis correct
Axle Steel for carriages and wagons	6
Frog Points and Plates	
" Side Bare	
" Side Bars	0
Pick, Diain (nammered)	
Pick, plain (hammered) and Mattock, beveled (rolled)	

	Table divisions made	
	Table Cutiery. piain	
	Table Cutlery, bevelea	
	Diller and theat Charles	
	Pike and Cant Hook.	
	Coat and Granite Wodge	
	Coal and Granite Wedge	
	Spindle, subject to Machinery classification	
	Then in Street of Occasion Office	
	Trap Spring Steel	
	Forged Crank Pins and Lathe Spindles	
	Distant Dodg wists	
-1	Piston Rods, plain	
-1	forged to shapes	
- 1	Wilde Dans whater	
	Blide Bars, plain	
	" forged to shapes	
	Crucible, Open Hearth or Bessemer	
	Boiles Pine Box and Eller Charles of Bessemen	
- 1	Boiler, Fire-Box and Flue Sheets, not less than 3-	
	thick	

	thick the box and Fine Speets, not less than 3-10
nt	Dollar Whee Bow and Wheelers to the control of
er.	thick. Boiler, Fire-Box and Flue Sheets, not less than 1/2
of	
43	Circulars and semi-circulars, when ordered separ-
8	Smoke Stack, to shape
-	Locomonwe Tank Steel
	File Cast Steel.
	Square, Round, Half Bound and Flat Bastard, &
	inch and over
5.0	Mill Saw. 8-inch and over

Horse ar	1 Shoe Rasp	j
Spira	Spring Cast Steel	
	Twe Cast Steel.	
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1 X 3-10, 36	9-10 and 14	
I and 13-	0X% and 4-32, % X3-10 and 4-32	ì
THE BATACE THE	5 and 3-32 and 12 g	
Solid Sal	Cast Steel.	
Three ar	I Five Piy Cast Steel	
AMIT OF ME	Agricultural Implement Cast Steel	
Book on	Dales County Imprement Utili Seet	
FORK and	reake, Orucible	
Horse E	ke Steel, cut to lengths, Crucible	
COTE SU	k Cutter, hevelog	
I ISOVETECL	100 and Shovel Steel in Bars	
Crucible	Piow Steet in slabs	

	.reast	mer	CLPME	Open	Hear	TA.	
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" Tee	th						
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PROTIEG TENEDER	MACE E	nnet					

	Terms.—Four months: a per cent. discount for if remitted within to days.
	Rolls and Castings. Furnace Floor and Straightening Plates. Housings and Castings not otherwise specified
	Guide Plates Spindles and coupling boxes. Sand kolls and Pinions, large size
l	Pipe Mill Castings. Roiling Mill Castings under so the
l	spur and nevel wheels, large small
	Pulleys up to 30 inches. over 30 inches. Engine Castings, light.
	Caued Rolla
	6 to In. diam to 20 in. long
	14 to 31 in. 77 to 108 in. After Oct. :, 1881, no discounts will be made at

lement as heretofore, prices quoted being net.	•
White and fled Lead.	
itrictly Pure White Lead in Oil. in kegs. 646c; to b Tin Palls, 146c. Who over keg price: 1214 h Palls, 16 Who over keg price; assorted, 1 to 5 h c 2c, per h over keg price.	1
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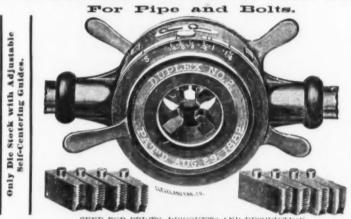


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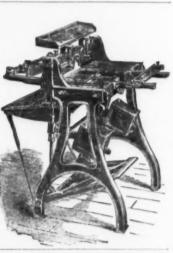
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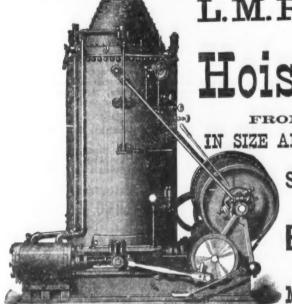
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Cilmax No. 19.	Common
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Traces 5, 10, 4, wasted. # pair 60 Coll 10. # B 100 Coll 10. # Coll 10. # Coll 10. Coll 10. # Coll 10. # Coll 1	("ards." Watson's make Horse & Curry dis 10 % Rev. Lis Watson's Cotton
Charlk, —White, Carpenter's. gross for Red, Carpenter's. Bue Carpenter's. Ghisels, —Hart, Bliven& Mead, Framing, dis octooks of Underbill, Framing, district of Underbill, dist	Traces op, 10, 4 wasted
Clothes Line. — dis to s Clothes Line. — Galvanized Wire, to feet each	Chalk.—White, Carpenter's. # gross to Red, Carpenter's. # gross it. Blue, Carpenter's. # gross it.o
Galvanized Wire, no feet each F dos 84.or Con! Hods"Dover."—Galvanized, New List.dis 6cd Japanned, new list.	Duck a Chilecter of the solution of the soluti
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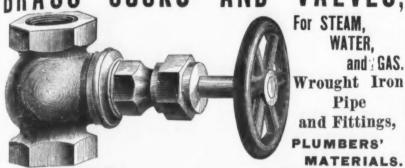
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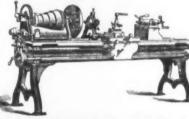
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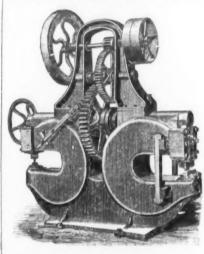
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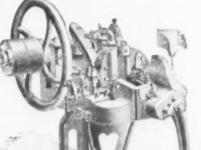
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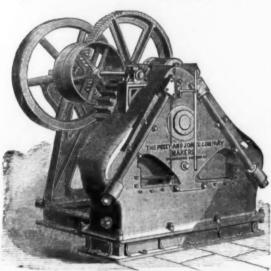
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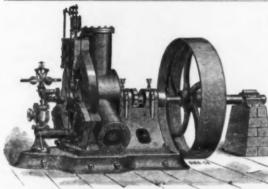
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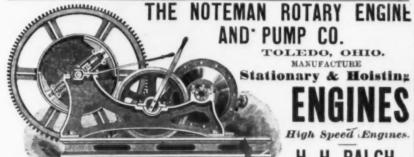
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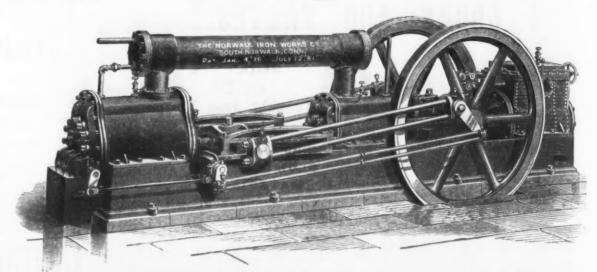
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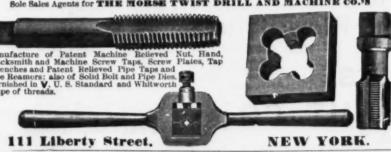
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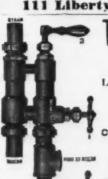


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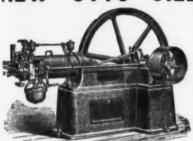
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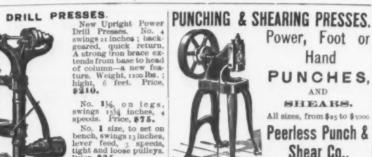
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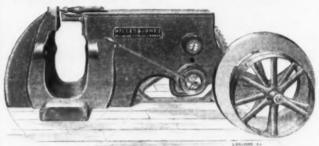
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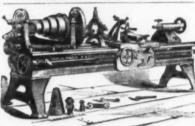


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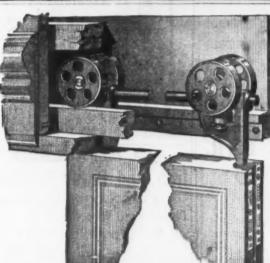
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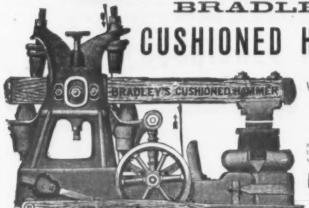
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